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## GET LEAN AND STRONG

Did you make any New Year's resolutions this year? And if you did, how is that going now that we are a few months into 2016? Of course, New Year's resolutions can be a great motivator to make a positive change (or changes) in your life. However, all too often, those resolutions are easily forgotten about within the first few months of the year. Well, we think that you don't have to wait for a new year to make a change, goal or a promise of self-improvement!

We encourage you to think beyond "resolutions" and instead focus on living the best fit lifestyle you can. And if you did make a New Year's resolution in relation to fitness but need some extra motivation to help change things up for continued progress, we have everything you need in this issue to get in your best shape!

As hard as it might be to believe, summer will be here before know it— so now is a good time to really work on that hot summer physique. But in addition to losing weight and building lean muscle, it's also good to think of the bigger picture. After all, being fit is also about living well and helping your body to function optimally so that you can be at your best. In "Have a Ball with Bikini Champion Janet Layug: A Hard-Core Total Body Stability Workout," by Jaime Baird on page 42, our cover model IFBB, Bikini Champion Janet Layug, demonstrates a workout that is great for building both core strength and stability. Whether you need to mix up your training or need a new challenge, this stability ball workout will help get you hard-core.

Since you are reading FitnessRx for Women, we know you like to train hard. We have featured many different lower body workouts in our magazine, and this month we have one that focuses on tightening up the legs— perfect for those of you who tend to build muscle more easily and want a more shapely look. With "Streamlined Legs with IFBB Bikini Pro Callie Bundy" by Lisa Steuer on page 60, you can sculpt sexy legs by summer. Plus, our very own web editor of [fitnessrxwomen.com](http://fitnessrxwomen.com), Callie Bundy, demonstrates the workout!

Building a strong and sculpted upper body takes serious work. That's why you need an intense workout for results— and barbells and battle ropes will do the trick. In "Get Sculpted and Lean with Ropes and Resistance" by Lisa Steuer on page 52, IFBB Bikini Pro Justine Munro demonstrates a high-intensity upper body program featuring a barbell and battle ropes that tones and sculpts the upper body. Plus, the battle ropes also provide heart-pumping cardio that will help you burn more fat at the same time you're getting stronger. It's the perfect combination to help you get in your best shape!

At FitnessRx, one of our goals is to report the latest cutting-edge research to help you train harder and achieve your best physique. So you don't want to miss "25 Hard Facts on Fat Loss" by Steve Blechman and Thomas Fahey Ed.D. on page 66. We compiled revolutionary facts based on scientific studies that can help you take your physique to a whole new level. Some things you can read about in this feature include reasons you gain weight, best ways to lose fat, factors that promote obesity, most and least effective diets, fat-burning ingredients and much more.

The rest of the issue is packed with the latest cutting-edge research and tips to help you tone up, burn fat, get lean, get in your best shape and make a healthy, fit lifestyle. You've got all the tools you need to continue your progress— so get to work and don't give up until you reach your fitness goals!

*Elyse & Jennifer*

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## LETTER OF THE MONTH

### LOVE THE MAG!

I'm a new subscriber, and I am so glad I stumbled upon this magazine. I've been weightlifting for a year and am not getting the definition or strength I would like. I'm looking forward to using the workouts and the healthy eating tips in the magazine to get the muscle definition I want.

Carol Wells  
Email

### REACHING YOUR GOALS

*"For me life is continuously being hungry. The meaning of life is not simply to exist, to survive, but to move ahead, to go up, to achieve, to conquer." Arnold Schwarzenegger*

My name is Jenna Serelo, and those are words I live by. My story is like many, active as a child and teenager, lost and confused as a young adult. Being a competitive dancer for many years of my youth, I didn't think of how fitness affected me physically until I no longer danced and saw my body changing in a way I did not like. After years of looking through magazines such as FitnessRx, wishing I could look like many of the fitness models featured, I stopped wishing and started working.

Since that day a few years ago, my life has forever changed for the better. After working out for a few months, I decided to sign up for my first fitness competition. I knew I needed a goal, something to make me stick to my plan. Three years later, two first-place wins, two third-place wins, a UFE Bikini Pro title and much more confidence later, I can proudly say I have accomplished my goal of "looking like the girls in the magazine." Competing has not only given me more confidence, it has provided me with the platform to reach out to, support, motivate and encourage others in their fitness journeys!

Not only do I love the fitness world, I eat, sleep and breathe an active lifestyle. Living in Banff Alberta, Canada, a tourist town nestled in the Canadian Rockies, provides me with daily opportunities for adventure. Whether it be hiking to the summit of the highest mountain, snowboarding after a fresh snowfall, mountain biking, snowshoeing, fly fishing, golfing, doing yoga in the park or simply going for a stroll to enjoy the fresh mountain air, I always find a way to get outside and move!

With the new year comes new goals and aspirations. If fitness icons such as Jessie

Hilgenberg, Nathalia Melo and Jamie Eason have taught our generation anything, it would be to go after the things you want most in life, not to be scared of rejection or what others say of you and to simply try. This year my New Year's resolution is just that—to simply try; to go after my goals no matter how big and scary they may be. After all, if I didn't go after my goal of bettering myself a few years ago, I wouldn't be where I am today.

Jenna Serelo  
Email

### BIKINI CHAMPION PROGRAM

I am absolutely loving Ashley Kaltwasser's workout and diet program in the February issue ["Bikini Olympia Champion Workout: 4-Week Training and Nutrition Program," February 2016]. Not only do I feel stronger and more defined after only two weeks on this program, but also the meal plan is so easy to implement into my life! I was always hesitant to try eating six small meals a day, but the diet with this program makes it so simple. Plus, it allows me to pick and choose what I want to eat, so it actually doesn't feel like a diet at all. I feel better than I ever have before and I'm not hungry all the time like I used to be. Thank you for helping to completely change how I eat!

Brittany Denver  
Email

### SHOULDER SCULPT

One of my New Year's resolutions is to build muscle and definition in my shoulders and arms. I love Tawna's workout in the new issue ["Shoulder Sculpt for 2016: Quick and Intense Volume Shoulder Workout," February 2016]. Thank you for such an intense workout that really gets my shoulders burning. I'm so excited to see my progress this year!

Danielle Ricaro  
Email




**Send us your comments!**

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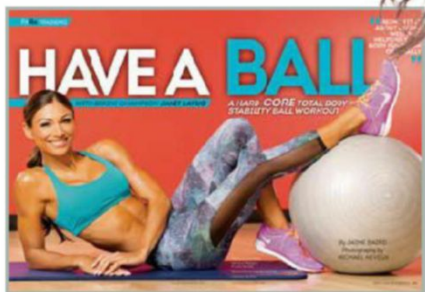


THE SCIENTIFIC APPROACH TO HEALTH AND FITNESS **FOR WOMEN**

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SCULPTURE & TONING FOR THE PERFECT BODY

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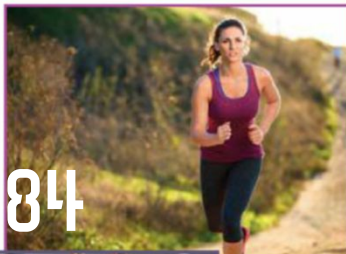
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ONLINE EDITOR  
**CALLIE BUNDY**

WITH REGULAR SECTIONS FROM  
SOME OF THE INDUSTRY'S BEST

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### **EVERYDAY FITNESS WISDOM** *with Rebekah Kathleen Clementson*

**AND MUCH MORE!**



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# FitRx WarmUP

● THE LATEST NEWS AND RESEARCH FROM THE WORLD OF FITNESS

APRIL 2016

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## EXERCISE AND DIET **IMPROVE** THE METABOLIC SYNDROME

■ The metabolic syndrome (MS) is a group of health conditions including high blood pressure, insulin resistance (high fasting blood sugar), abdominal fat deposition and abnormal blood fats. MS increases the risk of heart disease, stroke, diabetes and some types of cancer. It affects 34 percent of the population and the prevalence increases with age. Diet and exercise are the best treatments for the disease. Ricardo Mora-Rodriguez from the University of Castilla-La Mancha in Spain and colleagues found that the combination of aerobic interval training and reduced calorie dieting

improved body mass index, trunk fat, hemoglobin A1C (marker of blood sugar control), cholesterol, LDL cholesterol (bad cholesterol), maximal oxygen consumption, exercise capacity and the number of MS risk factors—compared to sedentary controls. Another group that sequentially exercised and then dieted also improved health factors. Metabolic syndrome is a serious health issue, particularly in the United States. Lifestyle modification could result in significant improvements. (International Journal Sports Medicine, published online December 14, 2015)

### MUSCLE ACTIVATION DURING BENT-KNEE AND MODIFIED SIT-UPS

■ Sit-ups are a mainstay of abdominal conditioning. William Sullivan and colleagues evaluated abdominal and hip muscle activation by electromyography (EMG) during traditional bent-knee sit-ups and modified sit-ups. Traditional sit-ups resulted in the greatest activation of the rectus femoris (quad muscle that flexes the hip) and external obliques (side ab muscle), while the modified sit-up activated the rectus abdominis (six-pack muscle) best. Muscle activation, however, is only part of the picture. Isometric core exercises such as planks and side bridges might be a better way to develop core strength and stiffness because they build a more functional core and prevent back pain. (Journal Strength Conditioning Research, 29: 3472-3479, 2015; Journal Strength Conditioning Research 29: 1515-1526, 2015)



## APPLY **HEAT** AFTER INTENSE EXERCISE

■ Cold has been the post-exercise modality of choice for more than 30 years. Pitchers and javelin throwers, for example, often applied ice bags to their shoulders after practice or competition. A study led by Jerrold Petrofsky from Loma Linda University found that heat worked slightly better than cold for reducing post-exercise muscle soreness and decreases in performance. Researchers applied ThermoCare cold or heat wraps following 15 minutes of squatting. The four immediate treatment goals include: preventing further damage, reducing spasm and pain, reducing bleeding and swelling, and promoting healing. Ice reduces bleeding, but it also decreases inflammation, angiogenesis (new blood vessel formation) and release of tissue growth factors. Ice decreases pain and spasm following an injury, but it might delay healing and eventual return to the playing field. Applying ice or heat after intense training is better than doing nothing, but heat works slightly better. (Journal Strength and Conditioning Research, 29: 3245-3252, 2015) »



## THE END OF SIT-UPS?

■ The sit-up has been the major exercise for building the abdominal and core muscles for more than 100 years. However, sit-ups put an unacceptable load on the spine that can lead to disc injury and chronic back pain. **Developing core stiffness is more important than building trunk flexion fitness because it strengthens muscles, improves muscular endurance, reduces low back pain and boosts sports performance.** Greater core stiffness transfers strength and speed to the limbs, increases the load-bearing capacity of the spine and protects the internal organs during sports movements. A landmark study by Benjamin Lee and Stuart McGill showed that isometric exercises for the core resulted in greater core stiffness than performing whole-body dynamic exercises that activated core muscles. The results of this study cast doubts on the value of traditional core exercises such as sit-ups. This is an extremely important study that might change the way we build abdominal and core muscle fitness. (Journal Strength Conditioning Research, 29: 1515-1526, 2015)



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■ Few exercise techniques are more effective at improving fitness rapidly than high-intensity interval training (HIIT)—a series of brief, high-intensity exercise sessions interspersed with short rest periods. The four components of interval training include distance, repetition, intensity and rest, defined as follows:

1. Distance refers to either the distance or time of the exercise interval.
2. Repetition refers to the number of times repeating the exercise.
3. Intensity refers to the speed of performing

the exercise.

4. Rest refers to the time spent recovering between exercises.

Canadian researchers determined that six sessions of high-intensity interval training on a stationary bike increased muscle oxidative capacity by almost 50 percent, muscle glycogen by 20 percent and cycle endurance capacity by 100 percent. The subjects made these remarkable improvements by exercising only 15 minutes in two weeks. Each workout consisted of four to seven repetitions of high-intensity exercise (each repeti-

tion consisted of 30 seconds at near-maximum effort) on a stationary bike. **Follow-up studies showed that practicing HIIT three times weekly for six weeks improved endurance and aerobic capacity as well as training five times a week for 60 minutes for six weeks.** These studies and many others showed the value of high-intensity training to build aerobic capacity and endurance. (ACSM's Health & Fitness Journal, 19(6): 3-6, 2015)

## Practice HIIT for **RAPID IMPROVEMENT IN FITNESS**

### KETTLEBELL HIGH-INTENSITY TRAINING PRODUCES **RAPID RESULTS**

■ The physiological responses to a kettlebell high-intensity interval training routine developed by Brian Williams and Robert Kraemer from Southeastern Louisiana University should build endurance and strength. The routine is a 12-minute kettlebell workout that uses a Tabata regimen—repetitions of 20 seconds of kettlebell exercises followed by 10 seconds of rest. The kettlebell exercises in the circuit were the sumo squat, swing, one-arm clean and press, and sumo deadlift. **The responses to the kettlebell circuit were similar to a time-matched interval-training workout on a stationary bike.** Caloric expenditure and heart rate were similar between workouts. The study expanded our view of high-intensity exercise. A high-intensity kettlebell circuit can substitute for high-intensity interval training workouts on a stationary bike or elliptical trainer. (Journal Strength and Conditioning Research, 29: 3317-3325, 2015)

## LOW-INTENSITY INTERVALS WITH **BLOOD FLOW RESTRICTION**

■ Weight training with low loads and restricted blood flow, a technique called Kaatsu training, increases strength and is particularly valuable during rehabilitation. A study led by Daeyeol Kim from the University of Oklahoma found that six weeks of low intensity interval training (30 percent of max) on a stationary bike combined with blood flow restriction increased aerobic capacity, power output, and knee flexion strength. The study used relatively untrained college-age students, so it is not clear whether this technique will work with well-trained athletes. (Journal Strength and Conditioning Research, published online September 25, 2015)

## **BEST** WAYS TO DO **SPLIT SQUATS** AND **WALKING LUNGES**

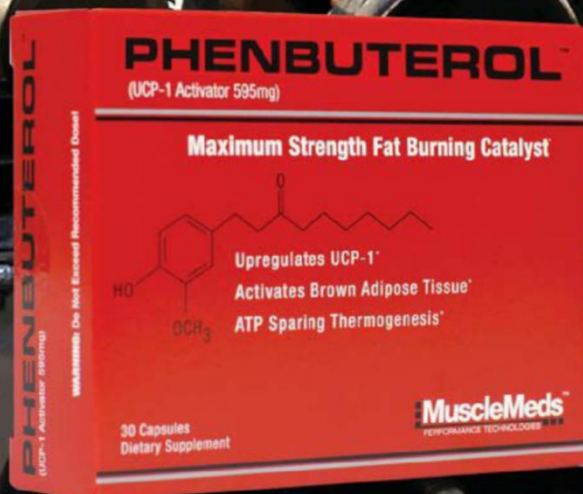
■ Split squats and walking lunges, particularly holding a dumbbell or kettlebell, are excellent lower body exercises, especially for novice exercisers. A biomechanical study by researchers from the Czech Republic showed that each exercise variation triggered different loading patterns that varied between trained and untrained people. Trained people exercised through greater ranges of motion during these exercises. Split squats resulted in the greatest range of motion for trained and untrained people, and would be the preferred exercise for beginners. Subjects achieved the greatest loading patterns when they held a weight in the opposite hand from the squatting leg. (Journal Strength and Conditioning Research, 29: 3177-3187, 2015) ■





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## Are You ADDICTED to Tasty Foods?



■ Ninety-five percent of people who lose weight through dieting and exercise gain it back within a year. Weight programs such as Nutrisystem, Jenny Craig, Slim Fast and Weight Watchers are gold mines because people return to them again and again after their long-term weight control programs fail. Metabolism is tightly regulated to balance energy and nutrient requirements with food intake through centers in the brain that control hunger and satiety (fullness). Sixty-nine percent of Americans are overweight or obese, so the system doesn't work the way it should. Many people are addicted to food. A literature review by Jose Manuel Lerma-Cabrera and co-workers from the Universidad Autonoma de Chile in Santiago, Chile found that tasty foods are addictive like street drugs. These foods increase dopamine levels in the brain. Dopamine is a stimulant that triggers craving and obsessive thoughts.

**Chronic dopamine stimulation upsets the balance between hunger and satiety, which leads to overeating—regardless of the negative consequences.** People can't cut down, even though they want to. As with drug addiction, food addiction is a serious and difficult problem with no easy solution. (Nutrition Journal, 15: 5, 2016)

## HIIT and Moderate-Intensity Exercise Produce Similar Health Benefits

■ High-intensity interval training (HIIT)—repeated bouts of high-intensity exercise followed by rest—builds fitness quickly. Canadian researchers found that six sessions of high-intensity interval training on a stationary bike increased muscle oxidative capacity (citrate synthase) by almost 50 percent, muscle glycogen by 20 percent, and cycling endurance by 100 percent. The subjects made these amazing improvements exercising a mere 15 minutes in two weeks. This study caused a frenzy in the fitness industry, which changed the way many people train. Does HIIT provide the same health benefits as traditional moderate-intensity training (MIT)? A study led by Gordon Fisher from the Department of Human Studies, University of Alabama at Birmingham, Birmingham, AL concluded that HIIT and MIT had similar effects on aerobic capacity, body composition, insulin sensitivity, blood pressure and blood fats. Twenty-eight sedentary, overweight men practiced HIIT or MIT for six weeks. The HIIT program consisted of four 30-second sprints on a stationary bike at 85 percent of maximum effort, while MIT consisted of 45 to 60 minutes of cycling at 55 to 65 percent of maximum effort. HIIT produced the same changes in one hour per week as MIT in five hours per week. (PLoS ONE 10(10): e0138853, 2015)

## IS FASTING HEALTHY?

■ Many people fast for religious reasons, weight loss or metabolic health. Is it good for you? Fasting regimes include periodic one-day fasts, modified fasts involving caloric restriction and time-restricted fasts involving food restrictions during specific times during the day (religious fasts). A review of literature led by Ruth Patterson from the Department of Family Medicine and Public Health at the University of California, San Diego concluded that fasting reduced blood sugar and insulin, which are linked to chronic type 2 diabetes and heart disease, and caused some weight loss. Fasting is not physically or mentally harmful. However, fasting causes intense hunger, so it is probably not sustainable. **Fasting does not result in greater weight loss than sustained calorie-restricted dieting.** We don't know much about the effects of fasting on sleep, hunger control or physical activity. Fasting methods that restrict nighttime eating appear to have positive long-term effects on weight control. Periodic fasting may be a good way to lose weight and promote metabolic health. (Journal Academy Nutrition and Dietetics, 115: 1203-1212, 2015)

## BILE ACIDS HELP REGULATE ENERGY

■ Recognizing factors controlling the balance between food intake and energy expenditure is important in understanding the physiology of obesity. Energy metabolism works through a series of coupled reactions. This means that energy released by breaking down fats, carbohydrates and proteins are captured in other reactions such as making ATP (a high energy chemical) or storing fats and carbohydrates. Uncoupling occurs when the energy from food breakdown is released as heat instead of capturing it as ATP. The human body contains small amounts of brown fat and uncoupling proteins that convert energy directly into heat. Polish researchers from the Institute of Animal Reproduction and Food Research at the Polish Academy of Sciences in Warsaw—in a study on rats—found that bile acids produced in the liver as part of digestion triggered uncoupling proteins to increase energy expenditure. This study shows another mechanism the body uses to control bodyweight. (American Journal Physiology Endocrinology Metabolism, published online December 29, 2015) »



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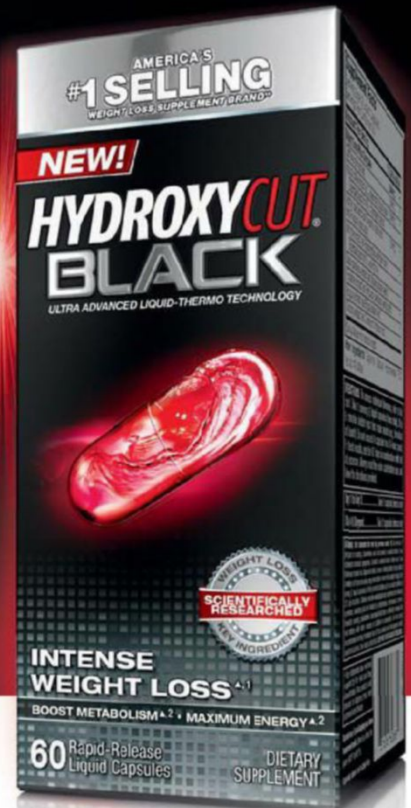


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## Ketogenic Diets **DO NOT AFFECT LEAN MUSCLE**

■ Body fat and proteins break down to produce energy during fasting or carbohydrate restriction. In the absence of adequate dietary carbohydrates, the fatty acids from fat breakdown are incompletely metabolized, which produces ketone bodies and causes ketosis (accumulation of acetoacetate and beta-hydroxybutyric acid in the blood). Fats burn in a flame of carbohydrates. Carbs break down to pyruvic acid, which supplies structures for the Krebs cycle—a critical metabolic pathway for metabolizing fats. Can muscles grow during ketosis—a time when the body is using muscle protein for fuel? A study on rats led by Michael Roberts from the Department of Cell Biology and Physiology at Auburn University in Auburn, Alabama found that rats fed a ketogenic diet (20 percent protein, 10 percent carbs, 70 percent fat) showed similar adaptations to resistance training as animals fed a normal Western diet (15 percent protein, 43 percent carbs, and 42 percent fat). If these results apply to humans, this is important information for athletes trying to lose weight by following a low-carbohydrate diet. (Journal of Applied Physiology, published online December 29, 2015)



## OBESITY & CANCER

■ Obesity overtook smoking as the leading preventable cause of cancer in the United States, accounting for 600,000 cancer deaths per year. Cancer is caused by genetic errors in protein synthesis that result in abnormal cell growth that often spreads to other parts of the body. Normally, cells can correct sequencing errors in DNA. Cancer occurs when these “fail-safe” mechanisms don’t work right. Obesity interferes with intercellular signaling that triggers genetic errors in protein synthesis and abnormal cell development. **Anabolic hormones such as insulin and IGF-1, which increase in obesity, enhance the early stages of cancer development.** Cancers of the esophagus, liver, kidney, breast, gallbladder, pancreas, prostate, ovary and uterus are particularly sensitive to metabolic changes triggered by obesity. Fortunately, even modest weight loss causes changes in metabolism that reduce the risk of these cancers. (The Scientist, November 2015)



## Nevada Closes Cryotherapy Center

■ Cold exposure promotes weight loss. Predictably, scores of weight-loss centers now feature cryotherapy chambers that expose people to subarctic temperatures of -200 degrees Fahrenheit. Proponents of cryotherapy claim that it promotes fat loss, speeds recovery from intense exercise and promotes a deeper sleep. The procedure is not without risks. **A woman died at the Cryotherapy Center in Henderson, Nevada after a self-administered cold therapy session.** She was an employee at the center and entered the chamber alone after work. The Nevada Division of Industrial Relations closed the center temporarily because they didn’t have proof of a worker’s compensation insurance policy. Cryotherapy is a promising but unproven technique. Presently, it is poorly regulated. (The New York Times, October 28, 2015)

## GUT MICROBES PROMOTE FAT LOSS IN THE COLD

■ Cold exposure promotes weight loss by stimulating brown fat activity. Brown adipose (brown fat) is a special tissue that releases energy as heat rather than storing it as fat. Brown fat becomes more active in response to the activity of specific kinds of microbes in the gut. Swiss researchers from the University of Geneva, in a study on rats, found that cold exposure altered the composition of gut microbes, which increased insulin sensitivity and “browning” of white fat cells. The activity of these gut microbes might explain why cold exposure promotes fat loss. Viruses and bacteria affect food absorption and influence gut hormones that regulate appetite and metabolic rate (the rate you burn calories). Animals infected with a common human cold virus put on much more fat than uninfected animals. These same viruses were more common in overweight people, so there might be a link. The Pennington Medical Research Center in Louisiana, a leading center for obesity research, has even created a Virus and Obesity Department. (Cell, 163: 1360-1374, 2015) ■



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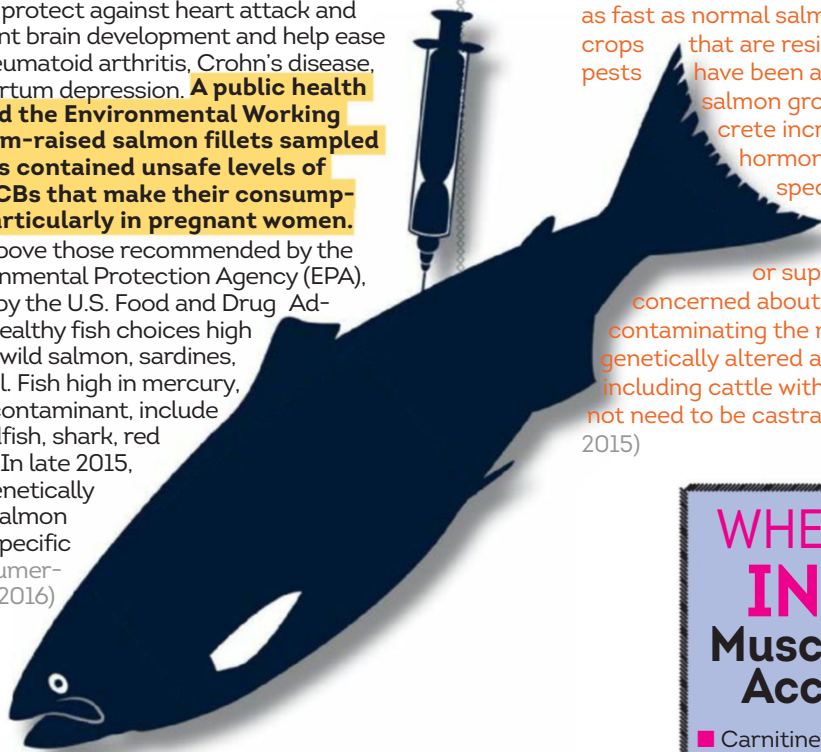


● BY STEVE BLECHMAN AND THOMAS FAHEY, EdD

## WHICH IS HEALTHIER: FARM OR WILD SALMON?

■ Salmon is a healthy food because it contains omega-3 fatty acids that protect against heart attack and stroke, promote infant brain development and help ease the symptoms of rheumatoid arthritis, Crohn's disease, psoriasis and postpartum depression. **A public health service group called the Environmental Working Group said that farm-raised salmon fillets sampled in three major cities contained unsafe levels of chemicals called PCBs that make their consumption dangerous— particularly in pregnant women.**

The PCB levels are above those recommended by the United States Environmental Protection Agency (EPA), but within those set by the U.S. Food and Drug Administration (FDA). Healthy fish choices high in omega-3s include wild salmon, sardines, herring and mackerel. Fish high in mercury, another dangerous contaminant, include albacore tuna, swordfish, shark, red snapper and halibut. In late 2015, the FDA approved genetically engineered farmed salmon and will not require specific source labels. (Consumer-Lab.com, January 3, 2016)



## FRANKEN-SALMON APPROVED by FDA

■ The U.S. Food and Drug Administration (FDA) approved the first genetically engineered animal, a breed of Atlantic salmon that grows twice as fast as normal salmon. Genetically altered crops that are resistant to drought and pests have been around for years. The new salmon grow fast because they secrete increased amounts of growth hormone. The salmon will have no special labeling, so consumers will not know whether they are getting normal or super salmon. Critics are concerned about the risks of these salmon contaminating the natural fisheries. More genetically altered animals are on the horizon, including cattle without horns and pigs that do not need to be castrated. (Nature, 527:417-418, 2015)

## DARK CHOCOLATE BOOSTS OXYGEN CONSUMPTION KINETICS in Recreational Cyclists

■ Dark chocolate is high in flavonoids, which promote blood flow. Rishikesh Patel from Kingston University in the U.K., and co-workers, found that consuming 30 grams of dark chocolate per day for 14 days caused slight increases in maximal oxygen consumption, cycling efficiency and gas exchange threshold— the point at which expired carbon dioxide increases abruptly. These effects were small, and might not make much difference in performance. **Many recent studies have touted the beneficial effects of flavonoids and polyphenol in food such as chocolate and red wine.** They are somewhat effective in reducing inflammation and free radical damage to cells. They may have long-term health benefits, but probably have few meaningful acute effects on exercise performance. (Journal International Society Sports Nutrition, 12: 47, 2015)



## WHEY PROTEIN INHIBITS Muscle Carnitine Accumulation

■ Carnitine is a chemical compound formed from the amino acids lysine and methionine. It is critical for transporting fatty acids from the cell interior into the mitochondria. Carnitine helps break down long-chain fatty acids and promotes oxygen consumption. The mitochondria are the powerhouses of the cells that provide the body's energy needs, determine endurance exercise capacity and greatly influence life span. Carnitine is poorly absorbed into muscle cells. It is insulin-dependent. A study from the University of Nottingham in the U.K. found that muscle carnitine uptake was increased following consumption of a high-carbohydrate beverage, but decreased following ingestion of whey protein. Carnitine should not be taken at the same time as whey protein supplements. (American Journal Clinical Nutrition, 103: 276-282, 2016) ■



# Does your protein shake have the symbol?

Lauren is an NPC bikini competitor, mother of three and a full-time registered nurse. She needs fast, convenient nutrition but she wants real food. Unfortunately, most liquid protein drinks are made from dried powders and loaded with carbs! Delicious **Go!** is made with real milk, contains 35g of protein and only 10g\* of carbs.

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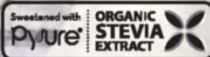
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Mother of 3 / NPC Bikini Competitor



## BEETROOT JUICE IMPROVES BLOOD VESSEL HEALTH

■ Foods high in nitrates, such as beetroot juice, stimulate the inner lining of blood vessels to secrete nitric oxide, a chemical that controls blood flow. Beetroot juice has positive effects on blood pressure, sexual performance and endurance exercise capacity. Beetroot juice has cardiovascular benefits in patients with high cholesterol— according to a six-week study led by Shanti Velmurugan from the William Harvey Research Institute in London, U.K. **Subjects receiving beetroot juice showed a 24 percent improvement in blood vessel performance (flow-mediated dilatation).** Beetroot juice also reduced platelet stickiness by 10 percent, which decreases the risk of blood clot formation and heart attack. Beetroot juice is a heart-healthy food that improves blood vessel health. (American Journal Clinical Nutrition, 103:25-38, 2016)

## OMEGA-3 FATTY ACIDS HELP PRESERVE MUSCLE TISSUE DURING AGING

■ People lose about 20 percent of their muscle mass between ages 40 and 60, and they go downhill from there. This results in decreased strength and power, and a reduced quality of life. It also decreases the capacity to regulate blood sugar, because muscle accounts for about 30 percent of post-meal blood sugar disposal. This increases the risk of heart disease. A review of literature by Scottish researchers concluded that high omega-3 fatty acid levels in muscle prevent muscle deterioration with age by preventing inflammation and insulin resistance. Omega-3 fatty acids from fish promote metabolic muscular health. (Marine Drugs, 13: 6977-7004, 2015) ■



## CARB RESTRICTION ENHANCES TRAINING ADAPTATIONS TO HIIT

■ Carbohydrate is the principal fuel during exercise at exercise intensities above 65 percent of maximum effort. We have known for more than 50 years that people have better endurance when they consume high-carbohydrate diets. Scientists from McMaster University in Canada found that power output is increased more following low-carbohydrate diets than when training with high-carb diets. Researchers introduced the concept of Hi-LO carb training. Subjects practiced two interval-training workouts per day for two weeks. Each workout was preceded by a high and then low carb intake (Hi-LO). Another group consumed high carbohydrate intake (HI-HI) before each workout. **The high-low carb consumption protocol resulted in greater power output by the end of the study.** The researchers used only moderately trained college students, so it is not clear whether the results would apply to serious or elite athletes. (International Journal Sport Nutrition Exercise Metabolism, 25: 463-470, 2015)

## NUTS: An IMPORTANT PART of a Healthy Diet

■ Nuts are high in calories and fat, so they haven't been taken seriously as heart-healthy foods— until recently. A review of literature and meta-analysis combining the results of 61 controlled intervention trials, led by Liana Del Gobbo from Tufts University in Boston, concluded that nuts decrease total cholesterol, LDL cholesterol, apolipoprotein B (ApoB) and triglycerides. The amount of nuts in the diet was more important than the type of nuts. Nut intake promotes weight control by displacing less healthy foods in the diet and by fighting hunger. Nuts are an important part of a healthy diet. (American Journal Clinical Nutrition, 102: 1347-1356, 2015)





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● BY STEVE BLECHMAN AND THOMAS FAHEY, EdD



## BIOTIN INTERFERES With Lab Tests

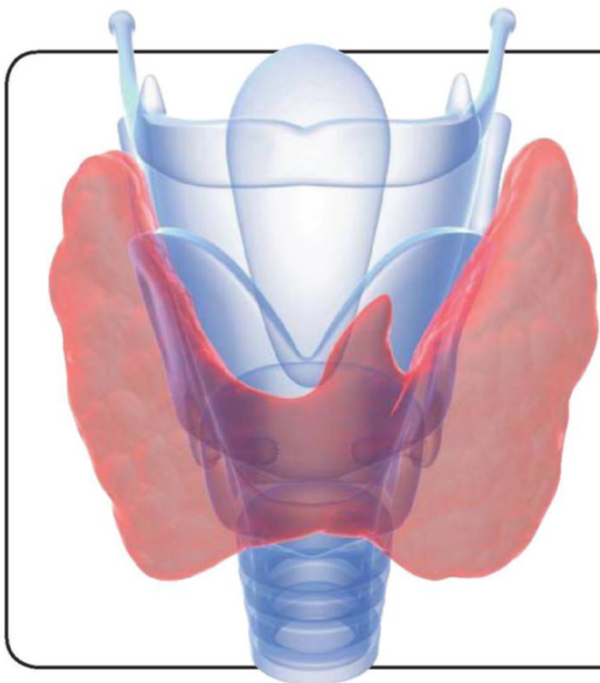
■ Biotin is a water-soluble B vitamin that is often marketed as vitamin B7, vitamin H or coenzyme R. It promotes the synthesis of fatty acids, branched-chain amino acids (leucine, isoleucine and valine) and blood sugar production in the liver. Supplemental biotin

increases hair and nail growth, and promotes blood sugar regulation. It is safe, even in high doses, so people often take megadoses of the supplement. **High blood biotin levels can interfere with blood chemistry tests, particularly thyroid hormone, causing either**

**falsely high or low values.** Biotin interference with lab tests could cause misdiagnosis or incorrect treatments. Stop taking biotin if you are scheduled for a medical examination, and tell your physician about your supplements. (Endocrine News, January 2016, p.22-26)

## Some Supplements Contain HIDDEN INGREDIENTS

■ More than 10 years ago, a study led by Ron Maughan and colleagues from the United Kingdom found that more than 25 percent of bodybuilding supplements sold on the Internet contained banned drugs. This caused significant problems for athletes who tested positive for performance-enhancing substances. Things haven't changed much since then. **The U.S. Food and Drug Administration (FDA) has identified more than 500 products containing concealed substances that are either potentially dangerous or banned in sport.** Purchase supplements from reputable companies. (Naturalproductsinsider.com, December 23, 2015)



## Low Selenium Linked to Thyroid Disease

■ Selenium is an element (Se) found in metal sulfide ores. While large doses of selenium are toxic, trace amounts are important for promoting blood sugar metabolism and synthesizing antioxidants such as glutathione peroxidase and thioredoxin reductase, which help neutralize free radicals produced naturally during metabolism. Chinese researchers found a link between low blood selenium levels and an increased risk of thyroid disease. They examined more than 6,000

people living in two areas of China. People with low blood selenium showed an increased risk of low thyroid output, immune system-linked thyroid disease and enlarged thyroid. Increased selenium intake through foods or supplements might prevent many cases of thyroid disease. Natural food sources of selenium include nuts, cereals and mushrooms. Selenium is included in most multivitamins. (Journal Clinical Endocrinology & Metabolism, 100: 4037-4047, 2015)

## Supplemental Citrulline BETTER THAN ARGININE for Older People

■ Citrulline is an amino acid that is converted to arginine, which increases levels of nitric oxide—an important chemical that regulates blood flow throughout the body. Nitric oxide is an important marker of metabolic health and is essential for well-being, sexual performance and overall energy levels. Citrulline supplements can reduce blood pressure in people with hypertension, and might also prevent muscle loss during aging—a

condition called sarcopenia. **A study of older adults by researchers from the University of Paris Descartes in France found that citrulline supplements increased blood arginine levels better than arginine supplements.** Citrulline supplements are safe and well tolerated, and are effective for boosting arginine and nitric oxide production in older adults. (British Journal of Nutrition, published online December 1, 2015) »



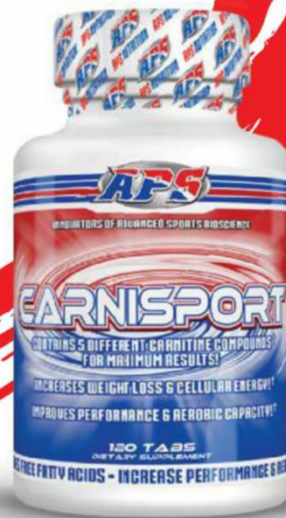
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## BETA-ALANINE INCREASES ENDURANCE

■ High-intensity exercise increases chemicals such as hydrogen ion, inorganic phosphate and adenosine diphosphate that slow biochemical reactions and promote fatigue. Buffers, such as bicarbonate and carnosine, can help neutralize these chemicals and promote performance. Carnosine, which is made from alanine, is an important antioxidant that protects cells from destruction and buffers acids that cause fatigue. Muscle carnosine levels are highly related to maximum exercise capacity. Supplementing carnosine or alanine increases muscle carnosine levels, which enhances muscle-buffering capacity. Muscle carnosine levels decrease with age, which reduces the capacity for high-intensity exercise. Jordan Glenn from the University of Arkansas, and co-workers, found that supplementing beta-alanine for 28 days in female masters athletes increased lower body muscle strength and exercise capacity, compared to a placebo (fake alanine). Beta-alanine is an effective supplement for intensely training, older female athletes. (Journal Strength Conditioning Research, 30: 200-207, 2016)

## OMEGA-3 FATTY ACIDS IMPROVE NEUROMUSCULAR FUNCTION

■ Myelin is an insulating covering around many nerve fibers that increase the speed of neural conduction. Myelin increases around nerve cells when you learn skills such as the golf swing, squatting, juggling or riding a bike. Skill practice works in part because of increased myelin. Omega-3 fatty acids can increase the myelin content of motor nerves and improve motor skills performance, according to a University of Toronto study led by Evan Lewis. The study showed that supplementing omega-3 fatty acids for three weeks increased muscle activation and reduced fatigue during high-intensity exercise and maximal squatting. (Journal International Society Sports Nutrition, 12: 28, 2015)

## ANTIOXIDANT SUPPLEMENT MIGHT INTERFERE With Endurance Training Adaptations

■ Highly reactive chemicals called free radicals (reactive oxygen and nitrogen species) are produced naturally during metabolism. These have been implicated in muscle damage, fatigue and impaired recovery from exercise. Antioxidants blunt the destructive effects of these chemicals, which have made them extremely popular as athletic supplements. A review of literature by researchers from the Energy Metabolism Laboratory in Zurich, Switzerland concluded that free radicals also serve as important cell-signaling chemicals that enhance natural cellular antioxidant capacity, mitochondrial formation (mitochondria are cell powerhouses), cellular defense and blood sugar regulation. Excessive use of antioxidant supplements might interfere with training adaptations. Endurance athletes should avoid excessive use of antioxidants such as vitamin C, vitamin E, vitamin B12, folic acid and alpha-lipoic acid. (Journal of Physiology, published online December 7, 2015)

## CHONDROITIN SULFATE BETTER THAN CELEBREX FOR KNEE JOINT HEALTH

■ Chondroitin sulfate was superior to the anti-inflammatory drug Celebrex for decreasing knee joint pain and preventing joint deterioration linked to osteoarthritis— according to a study led by Jean-Pierre Pelletier from the Rheumatology Research Institute in Montreal, Canada. **Chondroitin effectively delayed the progression of the disease, while improving functional capacity and decreasing pain.** Patients in the study took either 1,200 milligrams per day of chondroitin sulfate or 200 milligrams per day of Celebrex for two years. Chondroitin had the best long-term effect on arthritis progress, even though both treatments effectively reduced symptoms. (Paper presented at the American Academy of Rheumatology Annual meeting, 2015) ■



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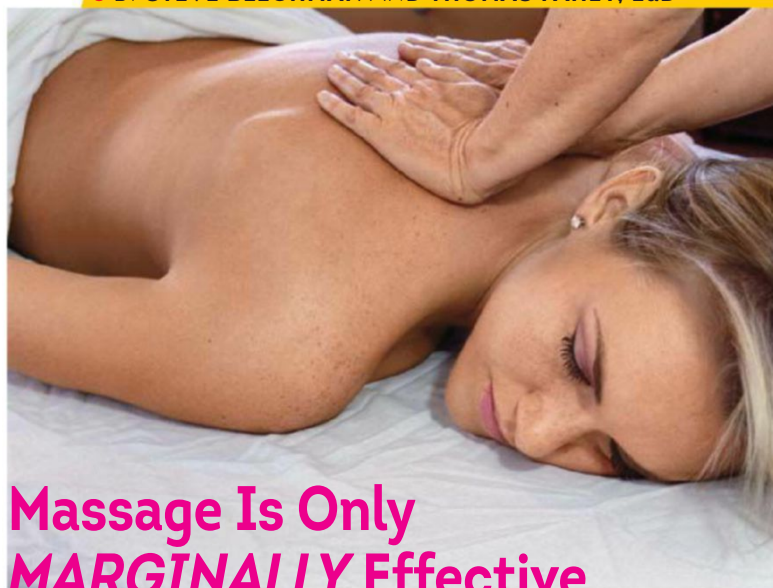
● BY STEVE BLECHMAN AND THOMAS FAHEY, EdD

## HIIT PROTECTS AGAINST HEART ATTACK

■ High-intensity interval training (HIIT) causes changes in the heart blood vessels that protect the heart during a heart attack— according to a study on rats by researchers from Shiraz University in Iran. HIIT increases the ability of heart blood vessels to secrete nitric oxide, which is a chemical that regulates blood flow. **HIIT improved the ability of the coronary arteries to deliver blood to cardiac muscle during times of stress.** Researchers studied the effects of eight weeks of HIIT training on tissue recovery from an experimentally induced heart attack. The size of damaged tissue during the heart attack was 23 percent smaller in animals that practiced HIIT. Intense exercise training prevents heart attacks and lessens their effects when they occur. (Iran Journal of Public Health, 44: 1270-1276, 2015)

## ALCOHOL CONSUMPTION HIGHER IN PEOPLE WHO EXERCISE

■ People who exercise regularly are more likely to drink moderately. Drinking and training go hand in hand. A hundred years ago, weightlifting gyms were often located in the back of saloons. Weightlifters often drank beer as they lifted. Things haven't changed much. Today, drinking and sports are closely linked. Recreational athletes typically have a beer or two after a softball game or bodybuilding contest. Most studies show that moderate drinkers are twice as likely to exercise regularly as non-drinkers. The results are consistent in men, women and different age groups. Moderate alcohol consumption is healthy, as long as it's not linked to destructive behavior. (Health Psychology, 34: 653-660, 2015; The New York Times, December 2, 2015)



## Massage Is Only MARGINALLY Effective

■ Massage has little effect on post-exercise recovery— according to a meta-analysis and literature review of 22 studies by scientists from Saarland University in Saarbrücken, Germany. **Massage worked best following workouts that combined strength and endurance training.** Massage lasting five to 12 minutes was superior to longer sessions. Untrained people benefited from massage more than experienced athletes. Researchers concluded that the effects of massage on recovery from exercise are small and inconsistent. Other studies have found that massage decreased muscle soreness after eccentric exercise (lengthening muscle contractions) and that it reduced symptoms in people with chronic back pain. Massage has only minor effects on promoting recovery and reducing musculoskeletal pain, but we need more research on this time-honored and popular modality. (Sports Medicine, published online January 7, 2016)



## COFFEE IS NOT RELATED TO HIGH BLOOD PRESSURE

■ Physicians have often recommended reducing or eliminating coffee consumption to reduce blood pressure. That's a mistake— according to a study led by Jinnie Rhee from the Stanford University School of Medicine. Researchers found no relationship between consumption of caffeinated coffee, decaffeinated coffee or caffeine and hypertension (high blood pressure). They measured systolic and diastolic blood pressure (higher and lower blood pressure numbers) three different times, and compared them with self-reported consumption of these products in postmenopausal women. **Coffee promotes longevity, and can improve physical and mental performance.** It contains powerful antioxidants that prevent cell deterioration. It might reduce the risk of some cancers and promote blood sugar regulation. Coffee is a healthy addition to the well-balanced diet. (American Journal Clinical Nutrition, 103: 210-217, 2016) »



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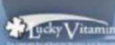
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## IS EXERCISE **BAD** FOR SOME PEOPLE?

■ Genetics studies show that some people respond differently to exercise than others. More than 800 genes affect exercise performance. Studies by noted geneticist Claude Bouchard showed that between eight and 13 percent of people experience negative physical changes from exercise, such as increases in blood insulin, triglycerides and systolic blood pressure and decreases in HDL cholesterol (the good cholesterol). Eric Leifer from the National Heart, Lung, and Blood Institute in Bethesda, Maryland noted that Bouchard et al. did not make comparisons in people who did not exercise, so their studies did not have adequate control groups. In an examination of nearly 1,200 people and a control group, they found no evidence of subgroups of people who responded negatively to exercise. Exercise is healthy for most people, but all people do not respond the same. (*Medicine & Science in Sports & Exercise*, 48: 20-25, 2016)

## COFFEE DRINKING **DECREASES** THE RISK OF LIVER DISEASE

■ Coffee drinking decreases the risk of cirrhosis of the liver by 80 percent. Liver cirrhosis is a chronic condition where scar tissue replaces normal liver cells. Causes include alcohol, hepatitis B, hepatitis C and non-alcoholic fatty liver disease. An international group of scientists compared 125 patients with liver cancer with 250 control subjects. **Coffee drinkers showed substantially fewer blood markers of inflammation and liver cell injury.** Coffee appears to protect the liver by reducing inflammation. Liver cancer is an extremely deadly form of cancer. Regular coffee drinking might help protect you. (*American Journal Clinical Nutrition*, 102: 1498-1508, 2015)

## HIGH-INTENSITY WEIGHT TRAINING **BEST** FOR REDUCING POST-EXERCISE BLOOD PRESSURE

■ Weight training for six or more weeks reduces systolic blood pressure (higher blood pressure number) by 3.9 millimeters of mercury (mmHg) and diastolic pressure by 3.2 mmHg. Aline de Freitas from the Federal University of Paraiba in Brazil, and colleagues— in a study on 16 middle-aged women with high blood pressure— found that intense weight training (80 percent of maximum weight) resulted in lower post-exercise resting blood pressure than lower-intensity training (50 percent of maximum weight). More intense weight training also resulted in greater muscle blood flow (muscle pump), heart rate and sympathetic response. Is resistance exercise, particularly intense weight training, good for people with high blood pressure? While intense weight training results in temporary decreases in blood pressure, it also increases atrial stiffness that increases the load on the heart and impairs blood vessel metabolism. We need more research to determine the long-term effects of weight training on high blood pressure. (*Journal Strength Conditioning Research*, 29: 3486-3493, 2015)

## FUNCTIONAL RESTORATION PROGRAM **Treats Back Pain**

■ Eight-five percent of Americans have episodes of back pain. It is the most common cause of disability in adults, and results in more than 145 million lost workdays per year, at an annual cost of \$100 billion to \$200 billion. Pain-relieving drugs are the principal treatments, but they are only stopgap methods because they don't get to the root of the problem. Dartmouth-Hitchcock Medical Center in New Hampshire offers a three-week "Functional Restoration Program" that involves exercise, relaxation and behavioral counseling. Unfortunately, many of the exercises emphasize trunk flexion and extension, which reproduce the mechanism of injury. Research by Canadian biomechanist Stuart McGill showed that isometric core exercises are superior to traditional dynamic exercise for building the core because they develop core stiffness and spinal stability. Core stiffness strengthens core muscles and improves their endurance, reduces low back pain and boosts sports performance. Greater core stiffness transfers strength and speed to the limbs, increases the load-bearing capacity of the spine and protects the internal organs during everyday movements. Isometric exercises for the core resulted in greater core stiffness than performing whole-body dynamic exercises that activated core muscles. His studies on core stiffness are changing the way we train for sport and treat back pain. (*The Wall Street Journal*, November 23, 2015; [Backfitpro.com](http://Backfitpro.com)) ■



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**- JS, Clinical Pharmacologist**

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**FitRxWarmUP • BEAUTY INFO-BITS**

• BY **LISA STEUER**

## BEAUTY QUESTION OF THE MONTH

with Dr. Jennifer Haley



"Eat a rainbow of colors."

### What are some of your top anti-aging tips for skin?

#### My top five tips:

- **Proper Sun Protection.** Ultraviolet exposure is the No. 1 cause of skin aging. It is natural to lose skin elasticity with age, but most collagen breakdown is from environmental factors. Before leaving the house every morning, apply SPF 30-plus sunscreen with zinc oxide to your face, neck, chest and back of hands. Basically, if you do not need a flashlight outside, you are exposing yourself to UV rays. The majority of sun damage over your lifetime is incidental during everyday activities. If you plan on spending time outside hiking, biking, skiing, etc., seek shade, wear a wide-brimmed hat and consider taking a natural supplement called Heliocare to protect your skin from the inside out. Top picks: sunscreen = EltaMD; hats = Sunday Afternoons

- **Nightly Retinoids.** Retinoids are vitamin A derived compounds that may go by the generic name of retinol or tretinoin. Retinoids have been shown in numerous studies to treat acne, remove abnormal pigment, reverse sun damage, and help with fine lines and wrinkles to give the skin a brighter, healthier appearance. Retinoids should be used as your first step nightly after washing. A pearl-sized amount is all that is needed for your entire face and can be used continuously, but should be avoided during pregnancy. Best results are achieved after using for six months consistently. Your best options will be found by prescription or in a dermatologist office, although an over-the-counter product can give modest results. Retinoids may peel your skin until it acclimates, so ease into it by using it every other night and applying a moisturizer afterwards.

- **Vitamin C.** Topical vitamin C products, when properly formulated, are potent antioxidants. They should be applied every morning prior to sunscreen to protect skin at a cellular and DNA level from environmental toxins and ultraviolet light. Vitamin C is very volatile, so don't expect something you buy at the grocery store to be active and

effective. Top picks: Skinceuticals CE Ferrulic, Skinmedica Vitamin C+E Complex, PCA Skin C-strength, Obagi Vitamin C 15% serum.

- **Avoid Sugar and Eat a Rainbow of Colors.** Eating sugar or highly processed carbs (look like sugar to your body) causes the formation of AGEs (advanced glycation end products) that permanently damage the collagen in your skin and other organs. This causes deep wrinkles to form and the skin to lose its supple, glowing appearance. Furthermore, those circulating sugars in combination with UV rays brown the skin, like toast brown, leaving brown spots where they are least wanted. Eating colorful vegetables and berries will impart a healthy color to your skin and also protect it from the inside out. Supplementing with fish oil and vitamin D is highly recommended in most people, as both are anti-inflammatory.

- **"Vitamin B."** I would be lying if I didn't recommend Botox®, or one of the other neuromodulators such as Dysport® or Xeomin®. Your mother was right when she said that making all those crazy faces would eventually stick. As elastic tissue and collagen diminishes over time and with environmental factors (UV rays, sugar, stress, pollutants), every time a muscle in the face moves, the skin has less of a tendency to bounce back. This eventually causes lines at rest, leading to an angry, weathered and tired appearance. Botox®, Dysport® and Xeomin® weaken unwanted muscles to produce a more relaxed appearance. I highly recommend finding a reputable injector and starting before the lines are there at rest. An expert will give you the results you want without anyone knowing you have had it done. The procedure takes less than 10 minutes with no downtime.

Have a skin-related question for Dr. Haley? Email your question to [editor@fitnessrxwomen.com](mailto:editor@fitnessrxwomen.com) and you could see it answered in the next issue!

Jennifer Haley, MD, FAAD is a board-certified dermatologist with a degree in Nutrition Science from Cornell University. She has been an NPC bikini competitor and a consultant to the US Capitol. She enjoys an active lifestyle in Scottsdale, AZ and Montrose, CO with her husband and three boys. »

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# Viviscal®



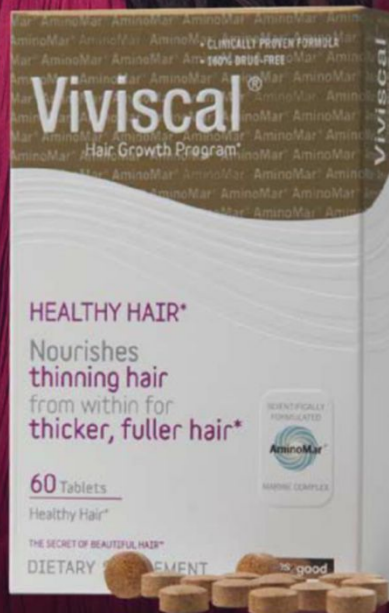
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## LIGHT THERAPY FACIALS

■ Facials using light therapy are becoming more popular in salons. Designed to lift, tone and de-age the skin, George the Salon in Chicago recently unveiled their new Anti-Gravity Facial (\$225). They report it to be like “doing yoga for your face” that utilizes a device that uses a microcurrent to shorten, lengthen, tone and train the muscles to lift or prevent them from falling. This facial includes light therapy to help rebuild the natural collagen and elasticity in the skin. This light therapy wakes up your collagen and elasticity cells that have become lazy because of the natural stages of aging and environmental breakdown. Overall, the facial is designed around preventing and reversing aging and features a potent dose of ingredients while also preventing free radical damage from appearing on the skin.

“Think of this as your workout for your face,” explains Lindsey Blondin, spa director and lead esthetician for George the Salon. “You do not go to the gym until you get to your desired results, and just stop working out to continue looking the way you did when you had gotten to your desired result. The same goes for this treatment, since it is conditioning your facial muscles by shortening and lengthening them so they are lifted and toned, giving you a natural facelift.”

## BEAUTY AND TECHNOLOGY

■ L'Oréal is entering a new age in beauty by releasing wearable technology in conjunction with Irish design engineering firm PCH. L'Oréal's new device is called My UV Patch, which is worn on the skin and can tell you how much UV exposure you are subject to at what times of the day, according to The New York Times. The patch is in the shape of a heart and contains tiny blue squares that fade as you get more skin-cancer-causing rays. It can be worn for five days and is used with an app, allowing users to find out when they're at a greater risk of UV exposure and what to do about it. My UV Patch is expected to be sold at the end of this year, according to The New York Times. In addition, L'Oréal is planning more wearable devices in conjunction with PCH, including Makeup Genius, a makeup-testing app. (L'Oréal Takes the Wearables War to the Beauty Counter,” [www.nytimes.com](http://www.nytimes.com); January 6, 2016)



## New Research in Skin Healing

■ LSU Assistant Professor Wei Xu and collaborators at Northwestern University discovered a new way to prevent inflammation and to speed up the healing process of the skin, according to ScienceDaily. It took about five years of research to identify a gene regulation pathway, which involves the body's sodium sensor called Nax (scn7a) that triggers inflammation. The researchers found a way to block this using a nanoparticle-carried small interference RNA, which allows to skin to heal faster. The nanoparticle can be applied to the skin in a cream or lotion, and the researchers believe it will be very promising for skin disease treatments. (“More Than Skin Deep: New Way to Help Skin Heal Faster,” [www.sciencedaily.com](http://www.sciencedaily.com); November 4, 2015) ■

## QUICK POST-GYM HAIR

■ Fernando Salas, creator of White Sands Haircare, shared a three-minute blowout you can do after your workout—whether you have to get to work, go out or have other plans after hitting the gym. Spray a hairspray like White Sands Infinity (\$22) to soak up extra oils and create lift at the roots. Quickly use your dryer and direct the heat only at your hairline to dry up the most visible, sweaty areas. Flip your head over and dry hair upside down. When you come back up, you will have volume while also refreshing your tresses. Spray your brush with perfume and run through your hair to finish.





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# MANGO BLACK BEAN SALSA

*Serve this unique and virtually fat-free salsa as a dip for chips, or spoon it over chicken or fish.*

## NUTRITIONAL PROFILE (PER SERVING)

MACRONUTRIENTS		VITAMINS	
KCAL:	86.620	A (RE):	39.921
PRO g:	3.677	C mg:	18.122
CHO g:	20.285	THIAMIN mg:	0.021
CHOL mg:	0.000	RIBOFLAVIN mg:	0.040
FAT Total g:	0.514	NIACIN mg:	0.549
SATURATED FAT g:	0.061	PYRIDOXINE (B6) mg:	0.082
MONOUNSATURATED FAT	0.110	FOLATE mcg:	28.010
POLYUNSATURATED FAT	0.105	COBALAMIN µg:	0.000
TRANS FATTY ACID g:	0.000	MINERALS	
DIETARY FIBER, TOTAL g:	3.695	SODIUM mg:	309.605
SUGAR, TOTAL g:	6.810	POTASSIUM mg:	301.928
		CALCIUM mg:	30.518
		IRON mg:	0.000



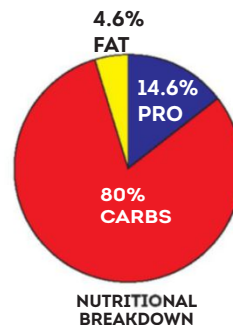
### INGREDIENTS:

- 1 (15 OUNCE) CAN BLACK BEANS DRAINED AND RINSED
- 1 (7 OUNCE) CAN WHOLE KERNEL CORN WITH PEPPERS, DRAINED
- 1 (15 OUNCE) MANGO SLICES OR 1½ CUPS FRESH MANGO, CUT INTO ¾ INCH CUBES
- ¼ CUP FINELY CHOPPED ONION
- ¼ CUP COARSE CHOPPED CILANTRO
- 2 TABLESPOONS FRESH LIME JUICE
- 1 TEASPOON GARLIC SALT
- ¼ TEASPOON GROUND CUMIN

### Totals Per Serving

Calories: 86  
Protein: 3.6 grams  
Carbohydrate: 20.2 grams  
Fat: .5 grams  
Cholesterol: 0 mg  
Sodium: 309.6 mg

In a medium bowl, combine black beans, corn, mango cubes, onions and cilantro. Stir in lime juice, garlic salt and cumin. Cover and chill to let flavors combine. Makes 8 servings.





## NUTRITIONAL PROFILE (PER SERVING)

MACRONUTRIENTS		VITAMINS	
KCAL:	195.370	A (RE):	93.106
PRO g:	9.579	C mg:	76.587
CHO g:	6.042	THIAMIN mg:	0.053
CHOL mg:	86.700	RIBOFLAVIN mg:	0.034
FAT Total g:	13.632	NIACIN mg:	1.191
SATURATED FAT g:	4.844	PYRIDOXINE (B6) mg:	0.377
MONOUNSATURATED FAT g:	1.607	FOLATE mcg:	23.011
POLYUNSATURATED FAT g:	0.519	COBALAMIN µg:	0.641
TRANS FATTY ACID g:	0.243	MINERALS	
DIETARY FIBER, TOTAL g:	1.608	SODIUM mg:	601.745
SUGAR, TOTAL g:	5.179	POTASSIUM mg:	292.897
		CALCIUM mg:	49.014
		IRON mg:	0.711

### INGREDIENTS:

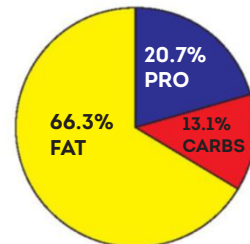
- 2 TABLESPOONS OLIVE OIL
- 2 TABLESPOONS BUTTER
- 1 SMALL ONION CHOPPED
- 6 GARLIC CLOVES
- 2 SERRANO CHILI PEPPERS, MINCED
- 2 TABLESPOONS HUY FONG SRIRACHA CHILI SAUCE
- 1/4 CUP FRESH LIME JUICE
- 1 BAY LEAF
- 2 TABLESPOONS CHOPPED CILANTRO
- 1/4 TEASPOON SALT
- 1/4 TEASPOON PEPPER
- 2 CUPS SHELLLED AND DEVEINED SHRIMP, UNCOOKED
- 2 CUPS RED, GREEN AND YELLOW BELL PEPPER STRIPS

## SRIRACHA LIME SHRIMP

Thirty-three years ago, David Tran was selling Sriracha sauce out of the trunk of his car, hoping to introduce L.A. locals to his culinary invention. Today it is a popular chili sauce known to millions of spicy food lovers around the world. Sriracha's unique blend of sweetness and spice perfectly enhances this colorful shrimp dish. Serve Sriracha Lime Shrimp over rice or simply on its own.

Heat the oil and butter over medium heat in a large skillet. Add the onions and sauté until translucent, about 2-3 minutes. Mince together garlic and chilies and add to the skillet. Sauté 2-3 minutes until softened but not browned. Add Sriracha sauce, lime juice, bay leaf, cilantro, salt, pepper, shrimp and bell pepper strips. Simmer 3-4 minutes, stirring occasionally until shrimp is cooked through. Serve over brown rice or on soft corn tortillas. Top with extra Sriracha sauce if desired. Makes 4 servings. »

### NUTRITIONAL BREAKDOWN



### Totals Per Serving

Calories: 195  
 Protein: 9.57 grams  
 Carbohydrate: 6 grams  
 Fat: 13.6 grams  
 Cholesterol: 86.7 mg  
 Sodium: 601 mg





# MUSTARD TARRAGON CHICKEN

*Fresh tarragon and a touch of cream make this very low-carb/high-protein chicken entrée worth every bite.*

## INGREDIENTS:

- 6 BONELESS SKINLESS CHICKEN BREAST HALVES
- ½ TEASPOON SALT, DIVIDED
- ¼ TEASPOON FRESHLY GROUND PEPPER, DIVIDED
- 2 TABLESPOONS FLOUR, OR WHEAT-FLOUR ALTERNATIVE LIKE COCONUT, CORN OR ALMOND
- 3 TEASPOONS BUTTER, DIVIDED
- ¼ CUP CHICKEN BROTH
- ¼ CUP DRY WHITE WINE
- ¼ CUP HEAVY CREAM (CAN ALSO USE COCONUT MILK)
- ½ TEASPOON DIJON MUSTARD
- 2 TEASPOONS CHOPPED FRESH TARRAGON

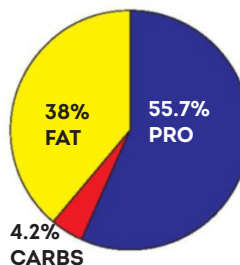
Place chicken between 2 sheets of plastic wrap or wax paper. Pound to about ½ inch thickness. Sprinkle with ¼ teaspoon salt and 1/8 teaspoon pepper.

Dredge chicken in flour (or flour alternative); shake to remove extra. In a large non-stick skillet or saucepan, heat 2 teaspoons butter over medium heat. Add half the chicken and cook until golden brown and no longer pink in the center (about 2-3 minutes per side). Place the cooked chicken on a serving platter and cover to keep warm. Add another teaspoon of butter to the pan and cook the remaining chicken. Transfer the second batch of chicken to the serving platter. Add the broth and wine to the pan and simmer until cooked down to about 4 tablespoons. Stir in the cream, mustard, and remaining salt and pepper. Cook for one more minute. Stir in the fresh tarragon and pour over chicken breasts. Serve immediately. Makes 6 servings.

## NUTRITIONAL PROFILE (PER SERVING)

MACRONUTRIENTS		VITAMINS	
KCAL:	223.636	A (RE):	70.436
PRO g:	30.076	C mg:	0.143
CHO g:	2.272	THIAMIN mg:	0.087
CHOL mg:	99.199	RIBOFLAVIN mg:	0.124
FAT Total g:	9.122	NIACIN mg:	13.088
SATURATED FAT g:	4.494	PYRIDOXINE (B6) mg:	0.580
MONOUNSATURATED FAT g:	2.746	FOLATE mcg:	5.366
POLYUNSATURATED FAT g:	0.967	COBALAMIN µg:	0.343
TRANS FATTY ACID g:	0.078	MINERALS	
DIETARY FIBER, TOTAL g:	0.290	SODIUM mg:	255.820
SUGAR, TOTAL g:	0.309	POTASSIUM mg:	282.966
		CALCIUM mg:	29.564
		IRON mg:	1.085

## NUTRITIONAL BREAKDOWN



## Totals Per Serving

Calories: 223  
 Protein: 30 grams  
 Carbohydrate: 2.2 grams  
 Fat: 9.1 grams  
 Cholesterol: 99.1 mg  
 Sodium: 225.8 mg





## LOW-CARB CHEESECAKE WITH BLUEBERRIES

*This low-carb crustless cheesecake is the perfect option when your sweet tooth says, "Go ahead, enjoy dessert" but the calendar says, "Bikini season is right around the corner!"*

### NUTRITIONAL PROFILE (PER SERVING)

MACRONUTRIENTS		VITAMINS	
KCAL:	188.911	A (RE):	113.153
PRO g:	4.602	C mg:	558.726
CHO g:	6.361	THIAMIN mg:	0.024
CHOL mg:	93.055	RIBOFLAVIN mg:	0.112
FAT Total g:	15.806	NIACIN mg:	0.138
SATURATED FAT g:	10.190	PYRIDOXINE (B6) mg:	0.039
MONOUNSATURATED FAT g:	4.460	FOLATE mcg:	10.897
POLYUNSATURATED FAT g:	0.830	COBALAMIN µg:	0.246
TRANS FATTY ACID g:	0.000	MINERALS	
DIETARY FIBER, TOTAL g:	0.371	SODIUM mg:	182.772
SUGAR, TOTAL g:	3.245	POTASSIUM mg:	90.014
		CALCIUM mg:	39.505
		IRON mg:	0.224

### INGREDIENTS:

16 OUNCES CREAM CHEESE, AT ROOM TEMPERATURE (TWO 8-OUNCE PACKAGES)  
 1 CUP SPLENDA NO CALORIE GRANULATED SWEETENER (PREFERRED) OR EQUIVALENT ALTERNATE SWEETENER OF CHOICE  
 2 EGGS AT ROOM TEMPERATURE  
 ZEST OF ONE LARGE LEMON  
 1 TABLESPOON PLUS ONE TEASPOON HEAVY CREAM  
 1 TEASPOON PURE VANILLA EXTRACT  
 1 CUP FRESH BLUEBERRIES OR FROZEN, THAWED  
 2 TEASPOONS FRESH LEMON JUICE  
 EXTRA SWEETENER TO TASTE

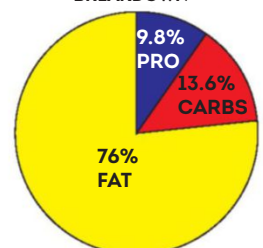
### Totals Per Serving

Calories: 188  
 Protein: 4.6 grams  
 Carbohydrate: 6.3 grams  
 Fat: 15.8 grams  
 Cholesterol: 93 mg  
 Sodium: 182.7 mg



Preheat oven to 350 degrees. Coat a 6-inch cake pan with butter-flavored olive oil cooking spray. Beat the cream cheese with an electric mixer on medium speed until completely smooth. Gradually add the sugar substitute while continuing to beat. Add the eggs one at a time continuing to beat well after each addition. Add the lemon zest, cream and vanilla. Scrape down the bowl with a spatula and stir to combine. Pour the batter into the prepared pan and smooth the top. Bake for 10 minutes. Reduce the heat to 275 degrees and bake for one hour or until the edges are lightly browned. Turn off the oven. Carefully remove the cheesecake from the oven and run a knife around the edges of the pan to loosen the cake. The center of the cheesecake may look undercooked, but will firm up. Return cake to the oven and allow it to cool gradually. When the cake has cooled, cover it with plastic wrap and place it in the refrigerator overnight. Serve with blueberries tossed in 2 teaspoons of lemon juice and granulated sugar substitute, to taste. Top with whipped topping if desired. Makes 10 servings. ■

### NUTRITIONAL BREAKDOWN



Fit**Rx** TRAINING

# HAVE A

WITH BIKINI CHAMPION **JANET LAYUG**





“BEING FIT IS  
ABOUT LIVING  
WELL AND  
HELPING YOUR  
BODY FUNCTION  
OPTIMALLY”

# BALL

**A HARD-CORE TOTAL BODY  
STABILITY BALL WORKOUT**

By JAIME BAIRD  
Photography by  
MICHAEL NEVEUX

Styling by Trish Stella

Hair and Makeup by  
Krystle Randall

Sports bra and leggings by Onzie

Footwear by Nike

[www.fitnessrxwomen.com](http://www.fitnessrxwomen.com)

APRIL 2016 FITNESSRX 43



WITH **SUMMER RIGHT AROUND THE CORNER**, WE'RE ALL WORKING TO GET OUR FITNESS ON POINT. HOWEVER, BEING FIT **ISN'T JUST ABOUT ROCKING A BIKINI, A BODY FAT PERCENTAGE OR STRENGTH GAINED**. BEING FIT IS ALSO ABOUT **LIVING WELL AND HELPING YOUR BODY FUNCTION OPTIMALLY**. IT'S HARD TO CELEBRATE A NEW PERSONAL BEST ON YOUR SQUAT IF YOU SIMULTANEOUSLY TWEAKED YOUR BACK AND COULDN'T TRAIN FOR WEEKS, RIGHT? RATHER THAN ONLY SETTING YOUR EYES ON GETTING LEANER AND STRONGER, ALSO CONSIDER THE BIG PICTURE. **"FITNESS IS ULTIMATELY TO BENEFIT YOUR HEALTH, NOT PUT IT AT RISK,"** ADDS IFBB BIKINI CHAMPION AND COVER MODEL JANET LAYUG.



## GET HARD-CORE

One important facet of developing your overall fitness is strengthening the core. Sculpting a sexy six-pack is a part of it, but it's much more than just that. In addition to the abdominals, the core includes muscles in the hips, back, gluteal region and pelvis. These muscles are critical, because they help to stabilize the spine in all movements from sitting and standing to swinging a golf club and performing a squat. A weak core causes the body to call upon other muscles to compensate, which can lead to overuse and injury over time. Knees, back and shoulders are often the victims of a weak core.

In addition to physical ailments, a weak core can also negatively affect one's performance in the gym, on the job or in sport. Without sufficient help from the synergist and stabilizer muscles, one's movements and force production suffer. Since making gains and seeing change motivates most of us to keep pushing, developing your core needs to be added to your list of 2016 fitness objectives—along with the killer midsection and round glutes!

### the WORKOUT

EXERCISE	SETS	REPS
PIKE TO PUSH-UP <i>SUPERSET WITH</i>	3	10
HAMSTRING CURL	3	15
BULGARIAN SPLIT SQUAT NO REST BETWEEN LEGS	3	10, EACH LEG
DUMBBELL CRUNCH <i>SUPERSET WITH</i>	3	20
PREACHER CURL	3	12
FEET ELEVATED TRICEPS DIPS <i>SUPERSET WITH</i>	3	12
FOREARM ELEVATED PLANK	3	30-SECOND HOLD
SINGLE-LEG TRICEPS KICKBACK <i>SUPERSET WITH</i>	4	12
LATERAL LEG LIFT	4	10 REPS, EACH LEG

## INSTABILITY TRAINING

To help strengthen your core and stabilizers, our cover model Janet Layug demonstrates a full-body workout using a stability ball that will get you on the right course and seriously challenge you. By incorporating a stability ball into your usual resistance movements, you will increase activation in the supporting muscles of the spine, hips, legs and shoulders. This additional muscle activation will not only exhaust these underused muscles, it will also amp up your heart rate. "Stability balls are great! Exercises using one correctly will improve muscle tone, posture, stability, flexibility and the cardiovascular system simultaneously!" explains Janet.



# MAKE IT WORK

HERE ARE A FEW WAYS TO USE THIS WORKOUT...

## EVERY FEW WEEKS:

While excellent for building core strength and stability, you will not improve strength and power of the primary movers as quickly with instability training, so it's important to view this type of training as a complement rather than the primary focus. Thus, consider performing this routine every few weeks.

## NEW CHALLENGE:

Do this routine when you want a challenge or a break from your typical regimen. Changing things up will help you bust through plateaus and stay motivated!

## MIX IT UP:

Rather than taking on the whole routine, incorporate a few exercises from the workout into your current training to work on building core strength and stability on a regular basis.

## Get It RIGHT

### PIKE TO PUSH-UP

Start in plank position with the hands on the floor, shoulders over the wrists and the shins on top of the stability ball. Contract your abdominals and lift the hips toward the ceiling, drawing the feet toward the torso. Pause and then roll the ball back to the starting position and perform a push-up. Keep the core engaged throughout the exercise to protect your back.

**MAKE IT EASIER:** Instead of a pike, bring the knees in toward the chest. Instead of the push-up, perform a plank hold with the feet elevated on the ball.

## TRAIN SAFE AND SMART

HAVE A SAFE AND EFFECTIVE WORKOUT WITH THESE QUICK REMINDERS...

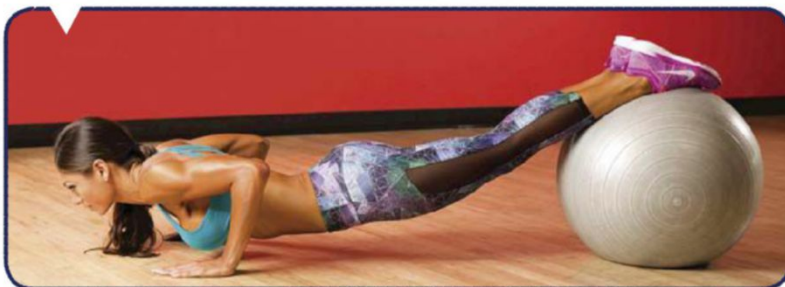
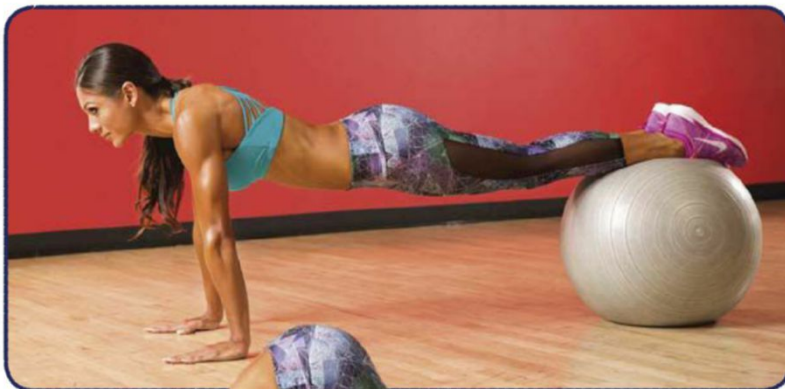
**WARM UP.** Perform 10 minutes of light cardio and dynamic stretches to ensure your total body is sufficiently warmed up and ready to work.

**KEEP IT TIGHT.** Brace your core when performing these moves to help keep your body stable.

**REDUCE WEIGHT.** Because of the added challenge of instability, you will likely have to reduce your weight lifted. That said, lift as heavy as you safely can while still maintaining stability and perfect form.

**BUILD UP.** In some cases, you may have to use the "Make It Easier" modifications to help you build up the strength and stability to perform the moves. If you are new to training altogether, perform exercises with a stable base first before progressing to these stability ball variations.

**BALL SAFETY.** The instability of the ball is challenge enough—do not add additional instability by performing the exercises on a slippery surface. Carpet or another course surface is recommended. Also, check the ball for damage and sufficient inflation before beginning exercises.



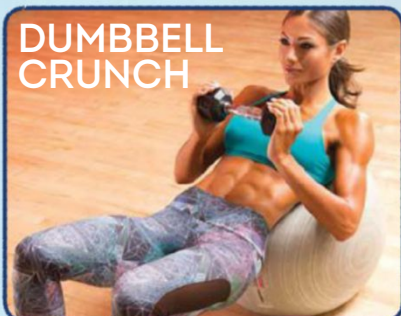


## HAMSTRING CURL



Lying on the floor on your back, place your heels on top of a stability ball. Lift hips up as high as you can, keeping all weight on the upper back and shoulders. Keeping hips up, curl your heels to your butt and then extend your legs back to the starting position. **MAKE IT EASIER:** Build up strength and stability with 30-second static holds in the starting position (legs extended straight with heels on the ball and hips lifted up).

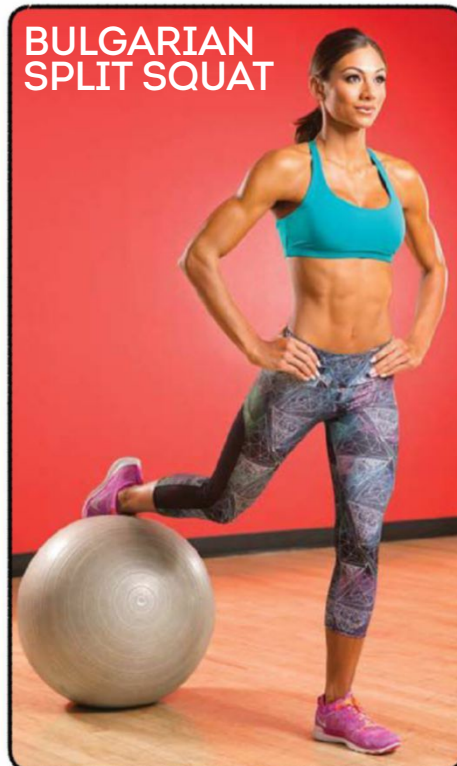
## DUMBBELL CRUNCH



Sit on the stability ball and walk your feet forward to lower your back onto the ball. Knees should be bent to about 90 degrees. Contract your abdominal muscles and curl your shoulders and trunk toward your knees. Lower down to the starting position.

**MAKE IT EASIER:** Widen the distance between your feet to make a more stable base and/or perform without the dumbbell.

## BULGARIAN SPLIT SQUAT

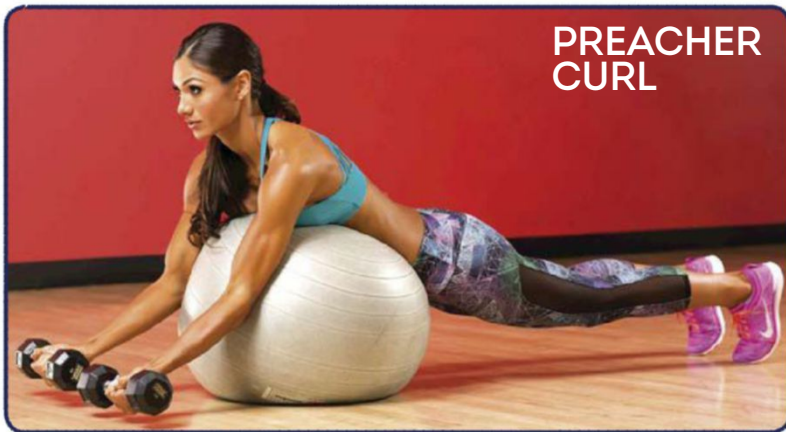


Place one foot on the top of the stability ball. Set up in a lunge stance with torso upright and tight abs. Lower down so your back knee is just above the floor without touching it.

**MAKE IT EASIER:** Elevate foot on a stable surface like a bench.





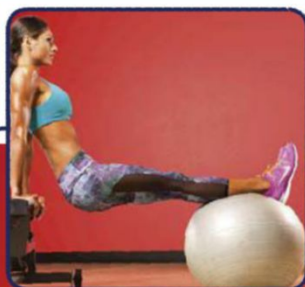


## PREACHER CURL



Holding dumbbells, place the upper arms on the ball with your palms facing up. Legs should be extended straight out behind you with your weight on your toes. Curl the weight up, and then lower the weight slowly.

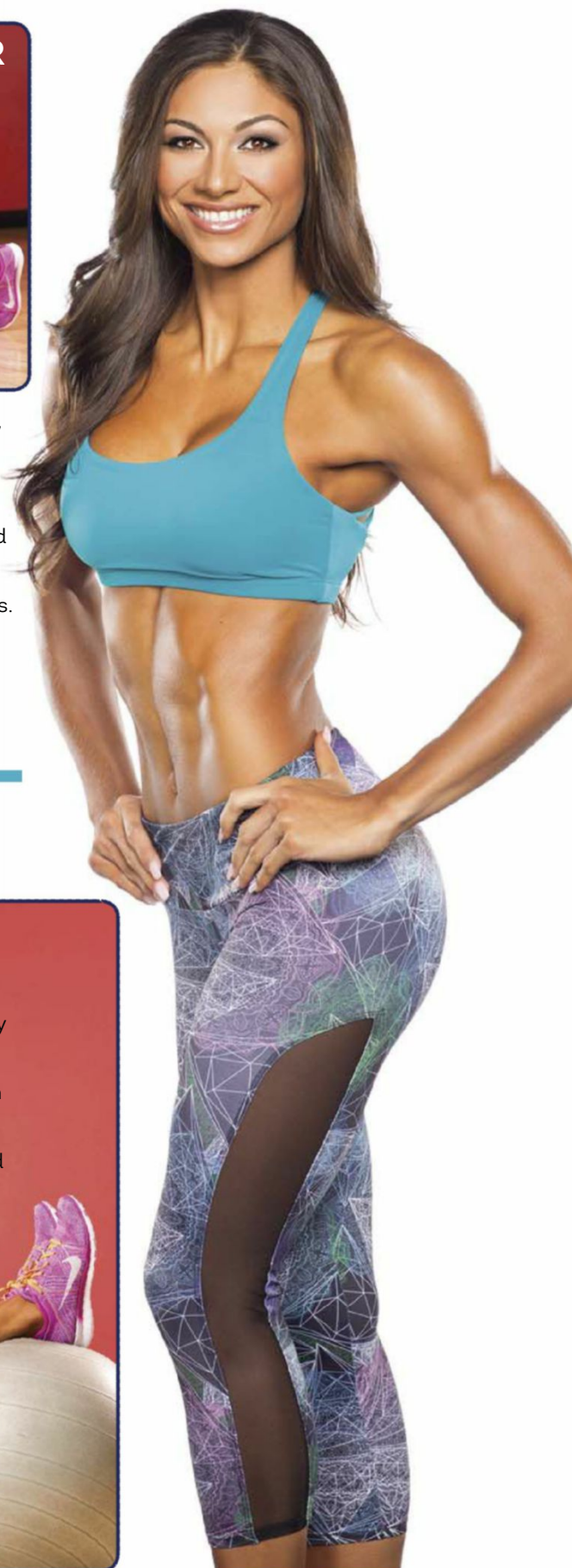
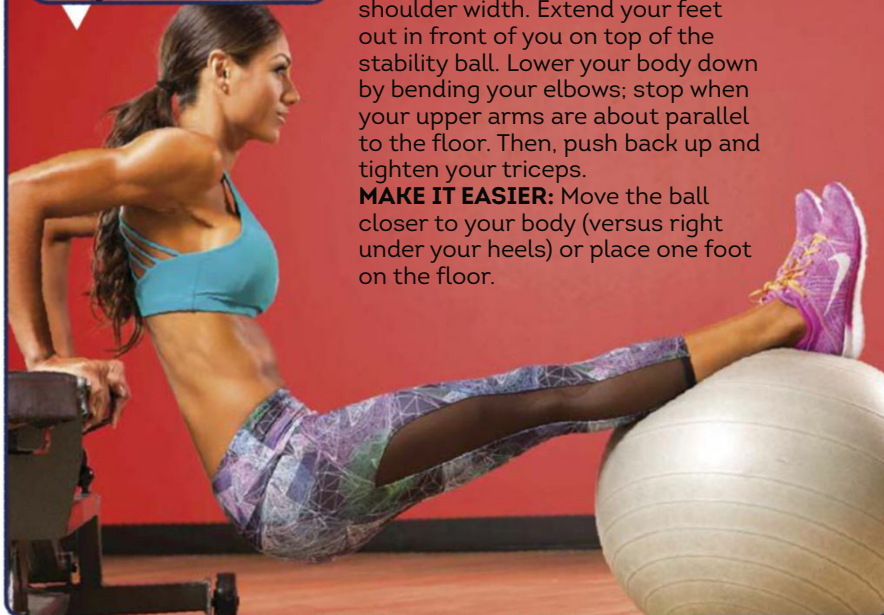
**MAKE IT EASIER:** Lower one knee to the ground.



## FEET ELEVATED TRICEPS DIPS

Sitting on a bench, grab onto its edge with your hands approximately shoulder width. Extend your feet out in front of you on top of the stability ball. Lower your body down by bending your elbows; stop when your upper arms are about parallel to the floor. Then, push back up and tighten your triceps.

**MAKE IT EASIER:** Move the ball closer to your body (versus right under your heels) or place one foot on the floor.



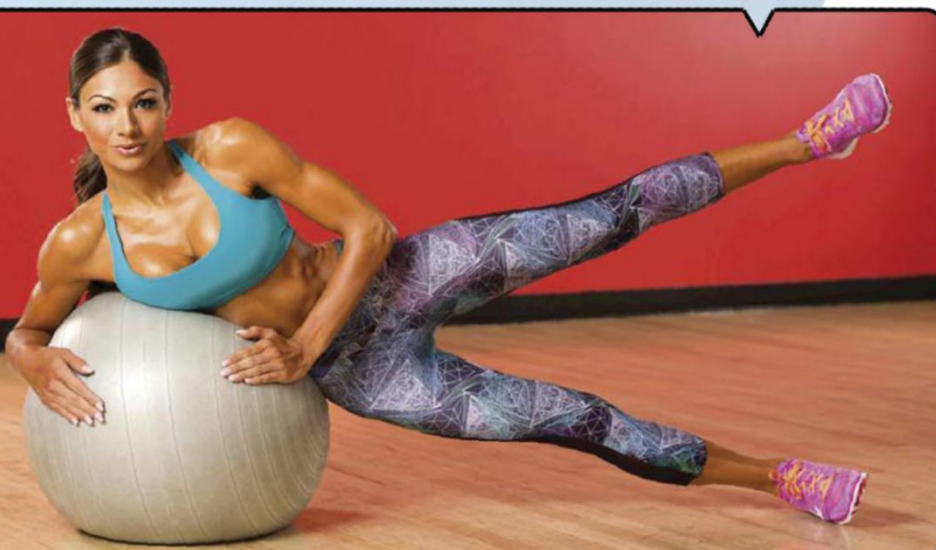


## FOREARM ELEVATED PLANK

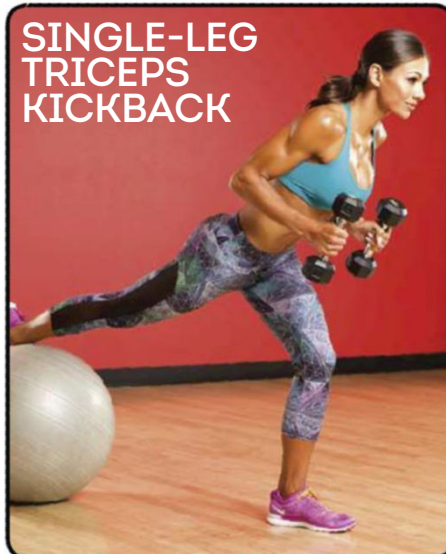


Get into a plank position, resting your forearms on the stability ball. Keep abs tight and hips in alignment with your torso. Hold this position for 30 seconds. **MAKE IT EASIER:** Complete each 30-second set in three 10-second intervals—resting five to 10 seconds between intervals.

## LATERAL LEG LIFT

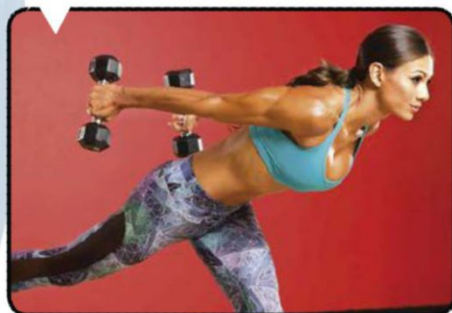


## SINGLE-LEG TRICEPS KICKBACK



Position the top of one foot on the ball. With a dumbbell in each hand, bend forward slightly at the waist and raise your elbows back and up to about shoulder height. Keeping your elbows stationary and tucked close to your body, press the dumbbells back to straighten your arms. Squeeze your triceps and then slowly lower the weight. Each set, alternate the leg elevated on the ball.

**MAKE IT EASIER:** Elevate foot on a stable surface like a bench.



Lie on your right side on the stability ball, legs extended straight out and feet stacked. Position your hands in a comfortable spot on the ball to create stability, and lift your hips so that your body forms a straight line. Keeping your body in that position, slowly raise your left leg, keeping your hipbones pointing forward.

**MAKE IT EASIER:** Lower the knee and shin of the bottom leg to the ground to add stability.



# COVER MODEL Q&A

*Janet squashes a fitness myth, shares a surprising fact and more!*

**FRX:** *You've experienced much success as an IFBB Bikini Pro and fitness model over the last year. What was one of the highlights?*

**JANET:** Last March, I made history as the first-ever Arnold Classic Australia Bikini Champion. Words truly cannot express the intense emotions I experienced at that moment. It's an incredible thing to know that all the hard work, sweat, tears and sacrifices I put into this reflected in this major accomplishment.

**FRX:** *What do you love the most about fitness?*

**JANET:** Fitness has always been a part of my life— even back to my childhood days. I'm really competitive by nature so I love that with fitness you can always compete to better yourself (if not competing against others). To me, that's motivation! I have to add that the aesthetic and major health benefits are great, too!

**FRX:** *Do you have any pre-workout rituals to get ready for the gym?*

**JANET:** Every breakfast meal, I take one Superlean, the Gifted Nutrition fat burner that I live by! I mix one scoop of Accelerate pre-workout with a glass of cold water and take that down before I head to gym. It keeps me focused and energized, and I get a killer pump lifting! I also like to clear my mind right before I walk in the gym, because I'm there for one reason only.

**FRX:** *If you could squash any fitness myth once and for all, what would it be?*

**JANET:** To lose fat, "you must eat chicken and broccoli every meal." It really couldn't be farther from the truth. Our bodies are designed to adapt to situations. If your meals stay the same, you can bet your metabolism and fat loss won't be changing much either— not to mention the nutrient deficiencies.

**FRX:** *What would people be surprised to learn about you?*

**JANET:** At a glance, you probably wouldn't expect me to be out in the woods...for fun! I grew up on a lot of land with lots of animals and even a garden. I'd prefer a target shooting session or fishing to a heels and makeup kind of date.

**FRX:** *When you're not training, competing or modeling, how do you like to spend your time?*

**JANET:** I enjoy doing absolutely nothing on my spare time. Seriously! If I have a good amount of downtime, I love taking mini weekend trips to places I have not been. But, when you travel most of the time, it's nice to sit still, and of course, do it with my family! I take full advantage of how comfortable my couch is!

“I'M REALLY  
COMPETITIVE BY  
NATURE SO I LOVE  
THAT WITH FITNESS  
YOU CAN ALWAYS  
COMPETE TO  
BETTER YOURSELF

”





**FRX:** *People all over the world look to you for inspiration. Who do you admire and why?*

**JANET:** My coach Tim Gardner. Not only is fitness his passion, he promotes ethics in life and leadership, values people and their time and treats everyone with respect. He works diligently and finds the positive in any situation. Also, he puts his family above all. I can relate to that. I am thankful to have an incredible coach, but also a great friend to look up to.

**FRX:** *How has your philosophy on fitness evolved over time?*

**JANET:** I really used to think I was doing it all right...you know lots of cardio. I ate everything everywhere whenever I wanted. It's a definitely a journey learning your body, how it works and how it responds to what you do and eat. There's a lot to do physically to be fit but many don't realize there's a lot mental to train, too! I've seen people go through major extremes of dieting and overexertion. But at the end of the day, fitness is ultimately to benefit your health, not put it at risk.

**FRX:** *What are your goals for 2016?*

**JANET:** I have my mind set on the Arnold Classic Bikini International and Olympia Bikini Champion titles. I came very close last year, but there's always room for improvement. These shows mean a lot to me, and I won't give up. So, that's what I'll be focusing on. I had a great year in 2015, but I'm going to top that in 2016!

## ABOUT JANET

2015 ARNOLD AUSTRALIA  
IFBB BIKINI CHAMPION

2015 MISS HOOTERS  
INTERNATIONAL

REGISTERED NURSE  
GIFTED NUTRITION  
ATHLETE

TEAM BODY TECH

## CURRENT RESIDENCE:

Lakeland, Florida

## KEEP UP WITH JANET

FOR MORE TIPS AND MOTIVATION FROM JANET,  
FOLLOW HER ON TWITTER (@JANETLAYUG),  
FACEBOOK (JANETLAYUG) AND  
INSTAGRAM (JANETLAYUG).

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# GET SCULPTED AND LEAN

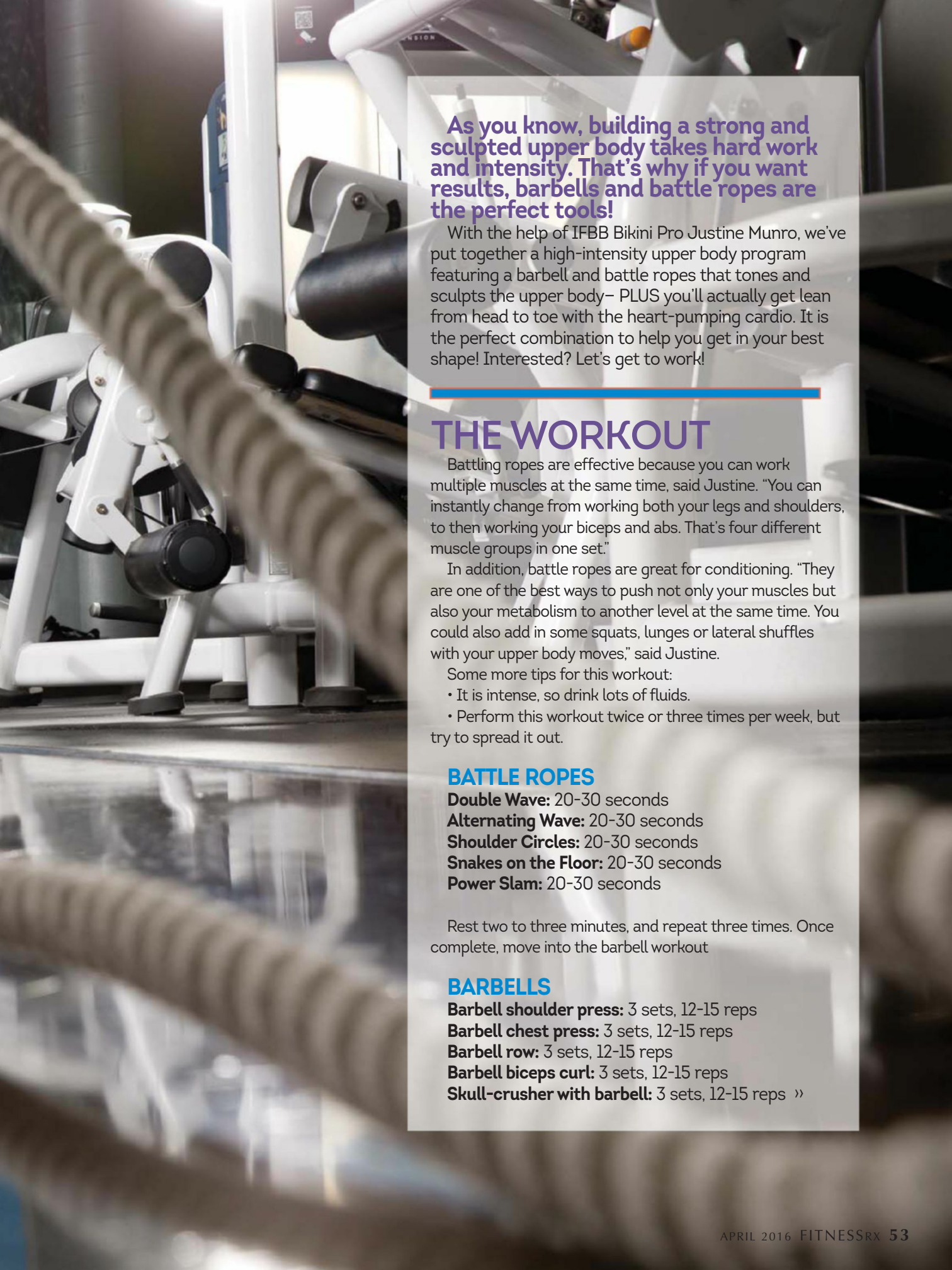
WITH ROPES & RESISTANCE

Styling by Trish Stella  
Hair and Makeup by Krystle Randall  
Bra and Leggings by Onzie • Footwear by Nike  
Location-EOS Fitness-Henderson, NV

By LISA STEUER | Photography by MICHAEL NEVEUX

**WITH IFBB BIKINI PRO JUSTINE MUNRO**





**As you know, building a strong and sculpted upper body takes hard work and intensity. That's why if you want results, barbells and battle ropes are the perfect tools!**

With the help of IFBB Bikini Pro Justine Munro, we've put together a high-intensity upper body program featuring a barbell and battle ropes that tones and sculpts the upper body— PLUS you'll actually get lean from head to toe with the heart-pumping cardio. It is the perfect combination to help you get in your best shape! Interested? Let's get to work!

---

## THE WORKOUT

Battling ropes are effective because you can work multiple muscles at the same time, said Justine. "You can instantly change from working both your legs and shoulders, to then working your biceps and abs. That's four different muscle groups in one set."

In addition, battle ropes are great for conditioning. "They are one of the best ways to push not only your muscles but also your metabolism to another level at the same time. You could also add in some squats, lunges or lateral shuffles with your upper body moves," said Justine.

Some more tips for this workout:

- It is intense, so drink lots of fluids.
- Perform this workout twice or three times per week, but try to spread it out.

### BATTLE ROPES

**Double Wave:** 20-30 seconds

**Alternating Wave:** 20-30 seconds

**Shoulder Circles:** 20-30 seconds

**Snakes on the Floor:** 20-30 seconds

**Power Slam:** 20-30 seconds

Rest two to three minutes, and repeat three times. Once complete, move into the barbell workout

### BARBELLS

**Barbell shoulder press:** 3 sets, 12-15 reps

**Barbell chest press:** 3 sets, 12-15 reps

**Barbell row:** 3 sets, 12-15 reps

**Barbell biceps curl:** 3 sets, 12-15 reps

**Skull-crusher with barbell:** 3 sets, 12-15 reps »



## BATTLE ROPES GUIDE

- If you are interested in doing battle ropes at home, you can start by getting a rope that's about 50 inches long, and about 1.5 inches in diameter.

- The rope should be anchored at its center about 15 to 20 feet away from you. If you are doing this on your own instead of at the gym, you can use a sign, tree or light post as an anchor. There should be a little bit of slack in the ropes to allow for the whipping action of the exercise.

- Start by standing in front of the rope, taking an end in each hand with your arms extended at your side. Your legs should be just wider than hip-distance apart. Engage your core and bend your knees slightly. Make sure your upper body is relaxed before starting.

- Do not stand too stiffly as you begin the exercise.

- Do not grip the ropes too hard, as this can lead to quick exhaustion. If you grip the ropes lightly, and relax your arms, shoulders and torso, you will be able to move faster and maintain intensity for longer periods.

- Make an effort to keep your pace even as it gets more difficult.

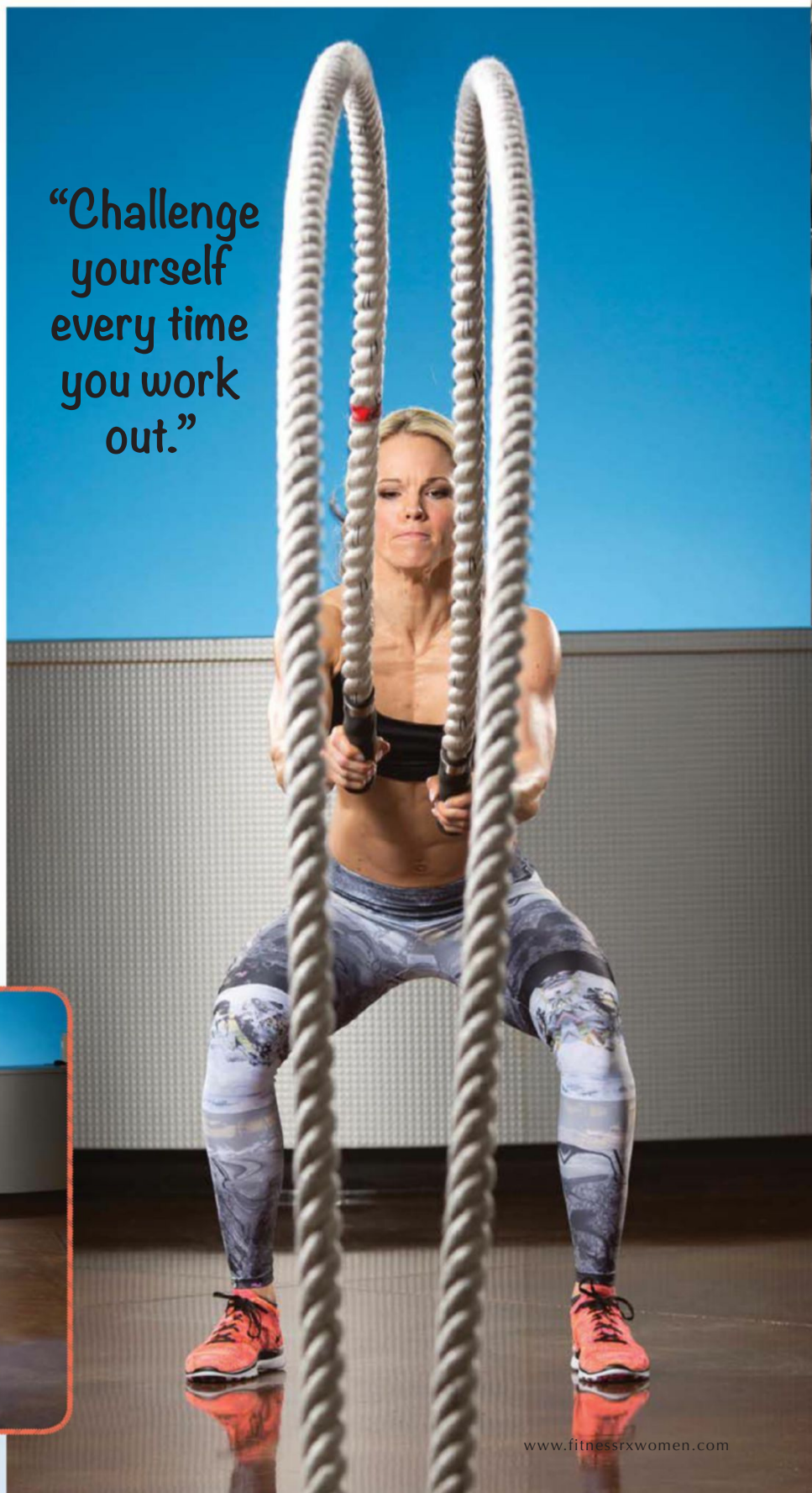
- Folding the rope over your hands doubles the size you have to hold, and thus makes it more challenging.

- Remember to breathe!



“Challenge yourself every time you work out.”

**BATTLE ROPES – DOUBLE WAVE:**  
Grasp the ends of the ropes, with one in each hand. Bring your arms up and down at the same time.





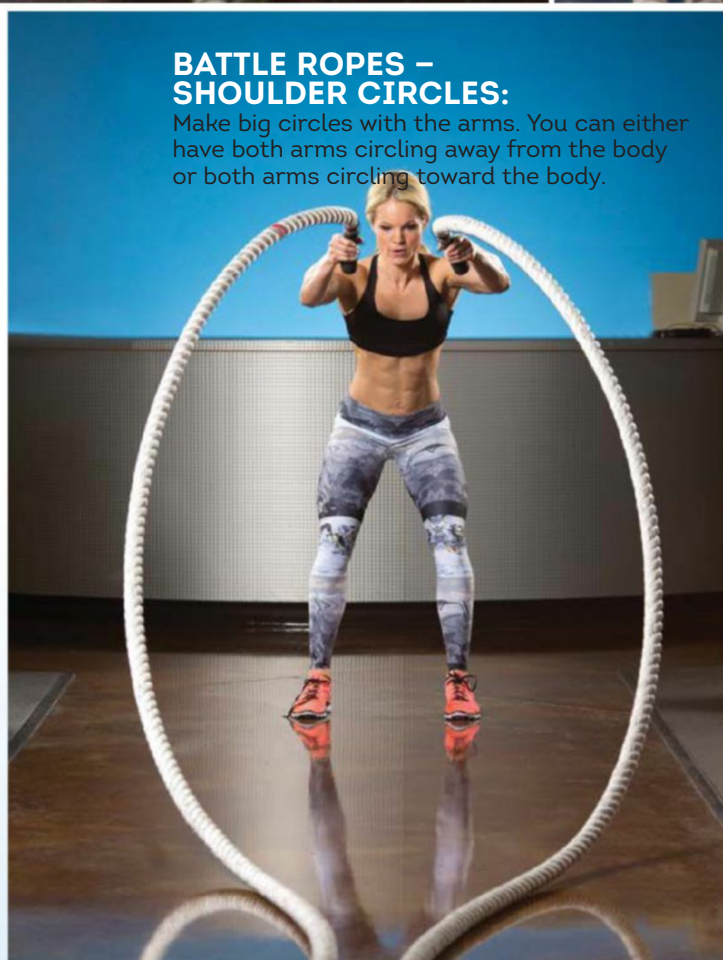


### **BATTLE ROPES – ALTERNATING WAVE:**

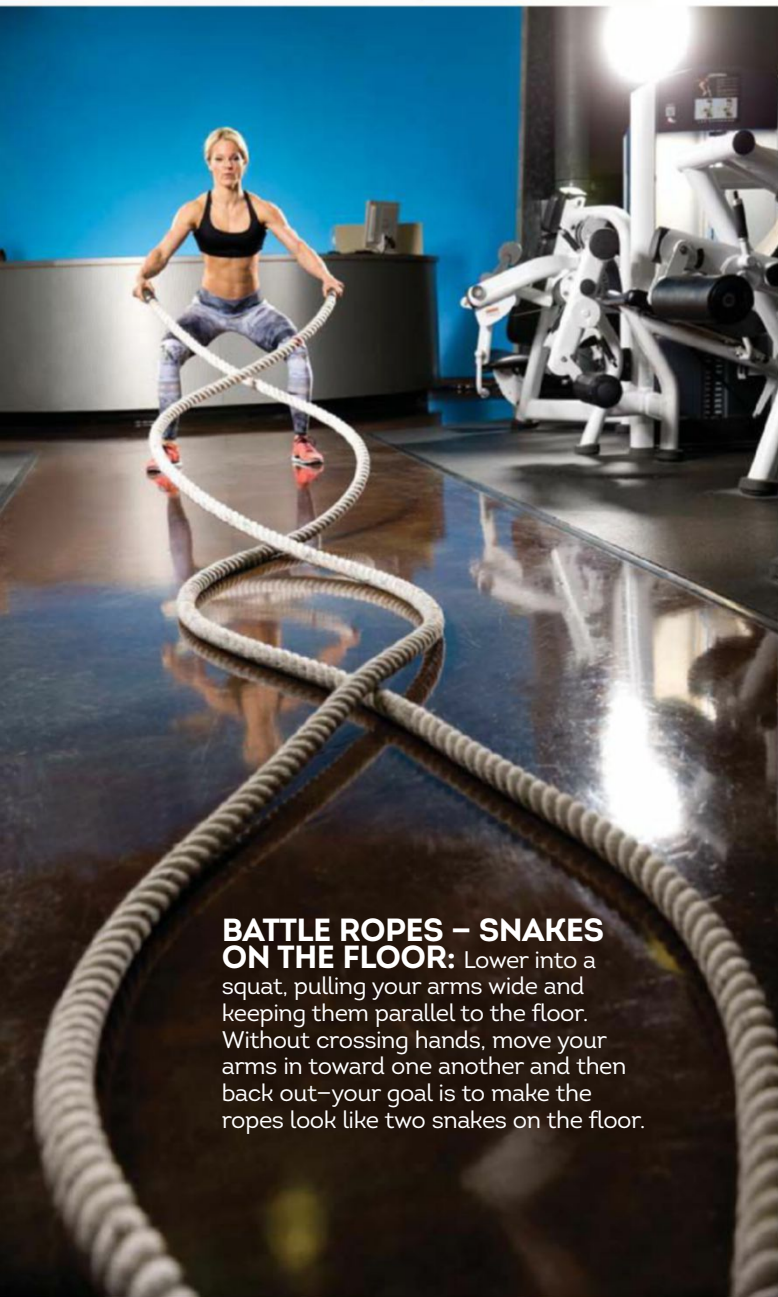
Arms should be slightly bent at the elbow. Raise one arm up while the other is at waist level. When the top arm is at eye level, slam the rope downward, at the same time raising your lower arm up. Repeating this motion, explosively alternate your arms up and down.

### **BATTLE ROPES – SHOULDER CIRCLES:**

Make big circles with the arms. You can either have both arms circling away from the body or both arms circling toward the body.



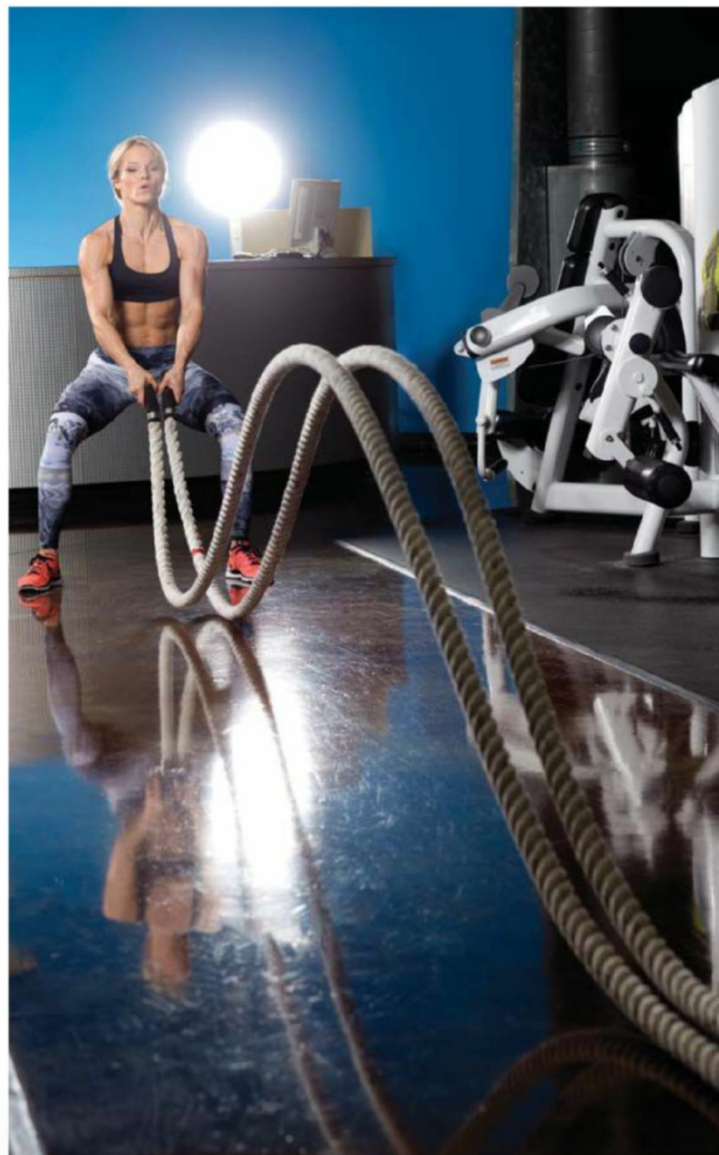




**BATTLE ROPES – SNAKES ON THE FLOOR:** Lower into a squat, pulling your arms wide and keeping them parallel to the floor. Without crossing hands, move your arms in toward one another and then back out—your goal is to make the ropes look like two snakes on the floor.

## BATTLE ROPES – POWER SLAM:

Bring both arms up overhead, and then forcefully slam the ropes down into the ground, lowering into a partial squat as you do. Straighten up to return to standing and repeat.



## SHAPE UP!

"We are our own worst critics when it comes to our appearance, size and shape—but remember, Rome was not built in a day," said Justine. If you want to get ripped and lean in 2016, here are Justine's top tips:

- **FOCUS ON THE PRESENT.** "One day at a time. Although long-term goals are essential, you can become discouraged and demotivated quickly when your body does not change quick enough. Stay focused on the present, and the future will speak for itself. It's all about the journey, not the destination."
- **WORKOUTS.** "Challenge yourself every time you work out. Use more weight with a 30-second recovery, add more reps and then do it all over again. The reason most people don't see changes is because they have to make their workouts harder!"

• **QUALITY VS. QUANTITY.** "It doesn't matter how many reps you do of any specific exercise— if you're performing the exercise without proper form, then there is no point, and you're fooling yourself. It's important you perfect the technique first and then over time you can add additional weight and/or speed."

• **ENJOY THE RIDE!** "Rock, sing, whistle to your favorite artists and playlist while you work out. I've been told that those that listen to music while they exercise exert more energy. Plus it's more fun!"

• **PERSONAL TRAINER.** "Find a personal trainer or instructor who inspires you and motivates you, and work with them. They will be your best advocate and challenge you when you need it the most. Most importantly, look in the mirror every day and love yourself. Tell yourself that it was a good day, and that you look forward to tomorrow."



“Look in the mirror every day and love yourself. Tell yourself that it was a good day and that you look forward to tomorrow.”



### **BARBELL SHOULDER PRESS:**

Standing with your feet about shoulder-width apart, hold a barbell at your chest. Lift over head, lower and repeat.



### **BARBELL CHEST PRESS:**

Lie on a flat bench. Breathe in slowly as you bring the bar to your chest. Pause a moment before pushing bar back to starting position and repeating.

### **BARBELL ROW:**

Bend your knees and straighten your back. When you row, take a breath and release when you pull the bar to your body. »





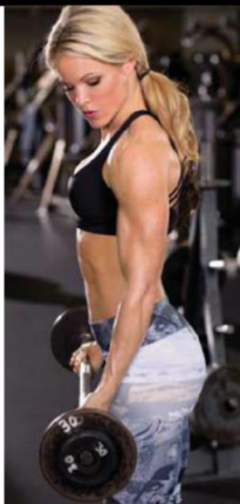
### JUSTINE'S SUPPLEMENT STACK

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- Acid CLA
- Opus, Orange Dreamsicle flavor, for intra-workout

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### SKULL-CRUSHER WITH BARBELL:

Lie on a flat bench and grasp a barbell at about shoulder-width. Extend a barbell straight up toward the ceiling. Keeping your elbows stationary and forearms parallel, slowly lower the weight down toward the top of your forehead. Extend the weight back up to the starting position.



### BARBELL BICEPS CURL:

Grasp a straight bar with hands about shoulder-width apart and fully extended. Curl the bar up toward your chest and slowly lower the bar to the starting position.



### KEEP UP WITH JUSTINE

Justine will be competing in the Arnold Classics in both Ohio and Australia this March!

For more with Justine, be sure to follow her on social media:

**Twitter:** Justine Munro

**Instagram:** Justine Munro

**Facebook:** Justine Munro Fitness Model

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## POWERFUL WEIGHT LOSS RESULTS

The key ingredient of Xenadrine Core® is backed by two scientific studies, including one published in the prestigious journal *Phytothérapie*:



Average weight loss with the key ingredient (*C. canephora robusta*) in Xenadrine Core® was 10.9 lbs. vs. 5.4 lbs. in a 60-day study with a low-calorie diet, and 3.7 lbs. vs. 1.25 lbs. in a separate 8-week study with a calorie-reduced diet and moderate exercise.

# Xenadrine



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# STREAMLINED LEGS

WITH IFBB BIKINI PRO  
**CALLIE BUNDY**

By LISA STEUER

Photography by GREGORY JAMES

**Since you're a reader of FitnessRx for Women, we know you like to train hard and build lean muscle.** And while we've

featured many leg workouts before, we decided to bring you something a little different this time around— an approach for *streamlining* the legs. In this workout program, the focus is on tightening up the legs— and it's especially perfect for gals who tend to build muscle more easily and want a more shapely look.

Plus, this workout program features our very own Callie Bundy, IFBB Bikini Pro and the new online editor of [fitnessrxwomen.com](http://fitnessrxwomen.com)! “My legs have always been muscular even as a skinny little girl. I remember guys saying, ‘How do you get your calves like that?’” said Callie. “I love my muscle, but the challenge has always been figuring how to train my legs without overdeveloping certain parts that throw off my proportion and symmetry.”

If you're ready to tone and sculpt your legs in time for the warmer weather, then let's get started! >>







"I wake up every day and couldn't be more excited to get to work!"

**SINGLE-LEG  
HIP THRUSTS  
OFF BENCH**

Styling, hair and Make-up by Jessica Colley  
Clothing: Bra: Avia, shorts: Reebok  
Footwear: Under Armour



## Get It Right

### THE WORKOUT

- In this workout, keep your reps a little higher, in the 15 to 20 range, said Callie. "But still make sure they are difficult. You shouldn't just be swinging through reps— you aren't a swing set!"
- For each exercise, perform one warm-up set, and four working sets.
- For best results, perform this workout two to three times a week.
- In addition to a workout like this, cardio is important to help burn fat and streamline the legs even further. "I do cardio five to six days a week and when I am really trying to streamline, I will just stick to a slow jog or walk so I don't 'beat up' my leg muscles too much," said Callie.

*Directions and tips for completing the exercises in this workout.*

**1) LEG EXTENSIONS:** Begin by sitting back in a leg extension machine. Bend your knees and place your instep underneath the roller pad located at the bottom of the machine. Grasp the machine's handles for support. Slowly bring your feet upward until your legs are just short of parallel with the ground. Contract your quads and then reverse direction, returning back to the start position.

**Callie's Tip:** "Keep toes pointed up, squeeze at the top and slowly go down."

**2) LEG PRESS:** On machine, extend your knees and hips, pushing the platform away. Make sure feet are placed high and wide. Return to starting position and repeat.

**Callie's Tip:** "Press through heels."

### THE EXERCISES

**LEG EXTENSIONS**

**LYING LEG CURLS**

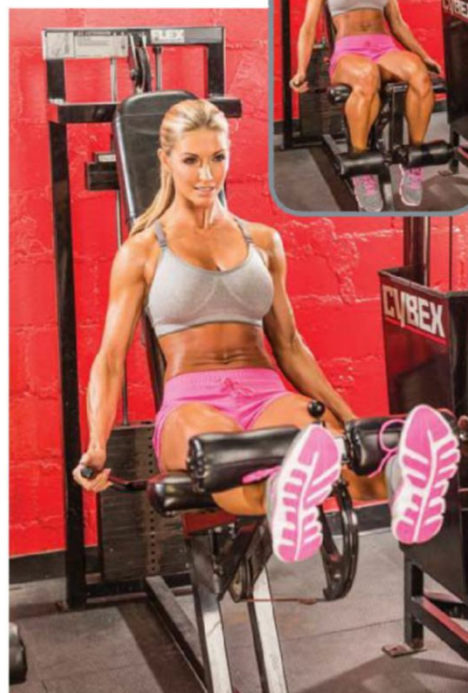
**LEG PRESS**

**DEADLIFTS ON BENCH**

**STRAIGHT-LEG WALKING LUNGES**

**SINGLE-LEG HIP THRUSTS OFF BENCH**

### LEG EXTENSIONS



### 3) LYING LEG CURLS:

Begin by lying facedown on a lying leg curl machine, with your heels hooked underneath the roller pads. Keeping your thighs pressed to the machine's surface, slowly curl your feet upward, stopping just short of touching your butt or as far as comfortably possible. Contract your hamstrings and then reverse direction, returning back to the start position.

**Callie's Tip:** "Keep your hips down on the bench, keeping your head up when you perform this movement will help force you to keep your hips down. You can even sit up on your elbows a little if you need more help keeping them down."



### LYING LEG CURLS



**4) DEADLIFTS ON A BENCH:** Stand up straight on a bench with feet shoulder-width apart holding a barbell in front of you. Keeping your back straight, slowly lower the body toward the floor with the barbell. Hold for a second before returning to the start position. ▶

**Callie's Tip:** "Keep your back as straight as you can, and really think about squeezing up with your glutes."

**5) STRAIGHT-LEG WALKING LUNGES:** Step forward with your one leg and keep back leg straight. Then, repeat with the other leg.

**Callie's Tip:** "Use your hands to balance you; don't worry about speed."

**6) SINGLE-LEG HIP THRUSTS OFF BENCH:**

Lying in front of a bench, press right heel on top of bench. Shift your weight to the right leg and extend your left leg upward. Driving through your right heel, lift your hips up. (Shown on opening page)

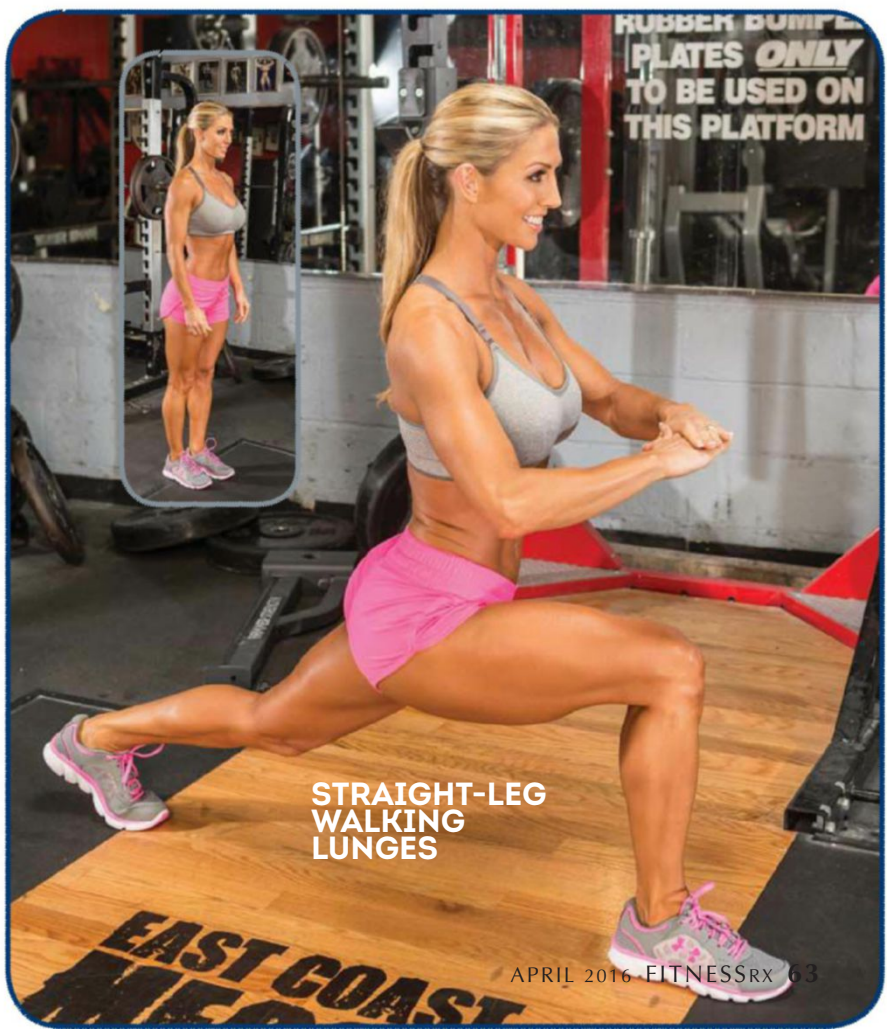
**Callie's Tip:** "Keep your heel on the bench and think about reaching to sky with toe of the foot and leg that is extended into the air. Go nice and slow and try not to rest on ground." »



"I love my muscle, but the challenge has always been figuring how to train my legs without overdeveloping certain parts that throw off my proportion and symmetry."



**LEG PRESS**



**STRAIGHT-LEG WALKING LUNGES**





**CALLIE'S TIP:  
DON'T FORGET CARDIO AND  
DRINK PLENTY OF WATER**

## QUICK Q+A WITH CALLIE

Growing up, Callie was a "total jock" who grew up playing soccer, basketball and softball in high school, and Division 1 softball in college. Get to know just a little bit more about the new editor of [fitnessrxwomen.com](http://fitnessrxwomen.com)!

**FRX: How does it feel to be the new editor of the FitnessRx for Women website?**

**CALLIE:** It was such an honor to be asked and I am still so flattered, it feels amazing! It's such a great website; everyone at FitnessRx for Women is so helpful and passionate about what they're doing. I couldn't have asked for a better team to become a part of; it's a special thing when you get all these people together who truly care about what they're doing. I wake up every day and couldn't be more excited to get to work!

**FRX: What do you hope to bring to the position?**

**CALLIE:** Well, the website is what it is only because of our supporters, and it's huge! We have the largest women's fitness following, which really means a lot to me, and our ladies love to train hard! They're smart, hardworking and take the same approach about their fitness. They enjoy our content because of its science-backed approach, and it works. I hope to continue growing this group of women from all walks of life because the stronger one of us gets, the stronger we ALL get.

**FRX: Sports have been an important part of your life. What are some life lessons you've learned through sports?**

**CALLIE:** I'll give you hardest lesson I learned. I was always pretty decent at sports. So I always struggled a bit with my batting average, because even at your best average you're still failing MOST of the time. I couldn't stand it. I remember one game in high school we won and we got into the playoffs. We took a team photo and

everyone was happy, except me... I was off pouting on the side. I was even the winning pitcher! But I was mad because I only went three for four, which if you know anything about batting averages, that's pretty good. I remember my dad seeing the photo and he looked at me and said, "You look like a jerk. You can't hit a home run every time at bat, that's why they call it a batting AVERAGE." And THAT really resonated with me, I DID look like jerk [laughing]. And from that moment on, I never looked at it the same again— and actually in life, it's been one of my best tools. I could fail seven out of 10 times trying to do something and I'm like, that's cool— I'm still batting 300 and that's pretty good!

**FRX: How do you stay motivated?**

**CALLIE:** It's just what I enjoy doing, so I do it. It's that simple!

**FRX: What is your diet like? Do you eat relatively clean year-round?**

**CALLIE:** Yes, I do, I happen to love real food! If anything, when I am not competing or getting for a photo shoot, etc., I will add more variety into my meals, with different fruits and vegetables I wouldn't eat if I was.

Also— eat enough! I make sure to eat all the food on my plan; if you aren't eating enough you won't see results, either. And that includes having your weekly cheat meal or what I like to call victory meal. If you're dieting correctly it's truly a necessary part of the plan. Don't skip it!

**FRX: What do you hope to accomplish in the next year?**

**CALLIE:** You know it's interesting, I was asked this question last year and I didn't say to be editor of [fitnessrxwomen.com](http://fitnessrxwomen.com), but here I am! For me, it's always just been about passion, learning and growth, and I think this year has plenty of that in store for me.





## RECOVER WELL

In addition to stretching, Callie does foam rolling four to five times a week for recovery. She especially likes to focus on quads and hip flexors since those get sore and tight. "And I tend to carry a lot of inflammation and water in my quads when I've worked them too hard, so rolling them helps me a lot!"

### CALLIE'S SUPPLEMENTS

- Fish oil: "I just don't eat enough fish but I know how important omega-3s are," said Callie. "It's great for your heart, brain, hair, skin— almost everything!"
- StrongGirl™ BCAA before and during workout: "I take this to fuel my workouts— it helps promote lean muscle, recovery and energy. Plus it also contains coconut water for added electrolytes, and since I sweat a lot, I like to replace those whenever possible!"
- StrongGirl™ Isolate for post-workout: "To help promote lean muscle growth."

"For me, it's always just been about passion, learning and growth, and I think this year has plenty of that in store for me."

### KEEP UP WITH CALLIE

Callie is the online editor of [Fitnessrxwomen.com](http://Fitnessrxwomen.com), so be sure to check it out for more great workouts and training articles!

Twitter: @CallieBundy  
Instagram: calliebundy  
Facebook: <https://www.facebook.com/callie.bundy>  
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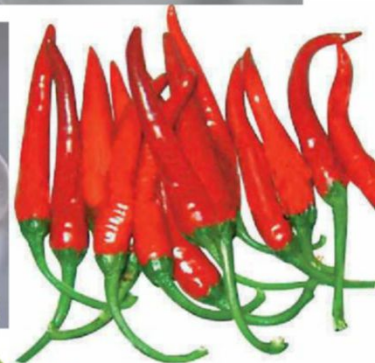
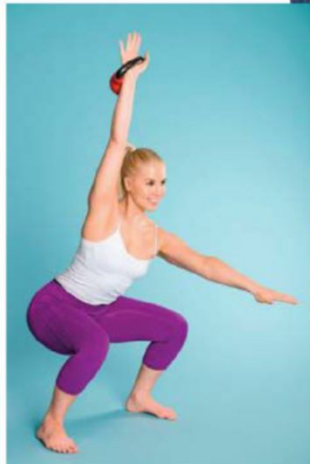
# 25

# HARD FACTS ON FAT LOSS

## CUTTING-EDGE RESEARCH

BY STEVE BLECHMAN AND  
THOMAS FAHEY, ED.D.

Here at FitnessRx for Women, we are always bringing you the best cutting-edge research in training and fat loss. In this special feature, we've compiled 25 of the best facts on fat loss, and they are all based on scientific studies to really help you reach your goals. Get ready to take your physique to a new level with these proven techniques and methods.





## 1. HIIT and Traditional Aerobics Produce Similar Results

High-intensity interval training (HIIT) involves repetitions of intense exercise lasting 10 to about 180 seconds, followed by rest or reduced exercise intensity. Scores of studies have shown that HIIT increases fitness faster than traditional, moderate-intensity exercise. Its effects on weight loss are less certain, particularly in obese and overweight people. Norwegian researchers found that obese women lost equal amounts of weight participating in HIIT, traditional aerobics or a combination of HIIT and aerobics. Ninety percent of success in life comes from showing up. Showing up is hard for a lot of people. This study showed that people benefit from many types of exercise programs. Vary your program to make it more interesting. (International Journal Sport Nutrition and Exercise Metabolism, published online October 17, 2015)

## 2. Five Reasons You Gain Weight

Weight and fat are national obsessions because more than two-thirds of Americans are overweight or obese. Most people have misperceptions about weight gain. Common beliefs include low metabolism, high digestion of food, damaged metabolism due to chronic dieting, eating one or two large meals per day instead of many small meals, and consuming too many carbs. All of these are urban legends and are not true. Claude Bouchard from the Pennington Biomedical Research Center in Louisiana has identified five factors linked to weight gain: 1) low muscle mass, which reduces metabolic rate; 2) low fitness, which decreases the capacity to expend calories through physical activity; 3) low testosterone, which is linked to the capacity to build muscle; 4) insensitivity to the hormone leptin, which helps control appetite and metabolic rate and 5) inability to directly burn dietary fat as fuel, which results in greater fat storage. No single factor is responsible for weight gain. The complexity of body fat control helps explain why it is so difficult to lose weight and keep it off. (New Scientist, November 15, 2014)

## 3. Gut Microbes Linked to Obesity

The human gastrointestinal tract contains more than 100 trillion microbes. Imbalances in gut microbes have been linked to obesity, the metabolic syndrome, inflammation, immune system breakdown, bad breath, gum disease, coronary artery disease, cancer, back pain, allergies and autism— according to a literature review by Davide Festi and colleagues from the University of Bologna in Italy. Obese and lean humans have different gut microbe populations, which might account for individual differences in weight gain and low-grade inflammation. Bacteria-laden foods called probiotics, containing bacteria such as *Lactobacilli acidophilus* and *Bifidobacteria* may be the next big health food craze because they stabilize the microbe population in the gut. Exercise also alters the gut microbes, which promotes weight loss. (World Journal Of Gastroenterology, 20: 16078-16094, 2014)

## 4. High Protein Intake Maintains Metabolic Rate During Low-Calorie Diets

Losing weight and maintaining lost weight is difficult because metabolic rate (i.e., calorie burning) gradually slows, which makes it difficult to sustain a negative caloric

balance. Researchers from Maastricht University in the Netherlands found that consuming a high-protein, low-calorie diet maintained metabolic rate better than a high-carbohydrate, low-protein and low-calorie diet. During the early phases of the weight-loss program, the high-protein diet prevented hunger but this disappeared during the later phases of the 12-week experiment. Consuming high amounts of protein during dieting and weight maintenance will help maintain metabolic rate and increase the chances for successful weight loss. (Clinical Nutrition, published online November 8, 2014)

## 5. Best Way to Lose Weight: Diet, Exercise or Diet + Exercise?

Want to lose 20 pounds? Should you go on a starvation diet, run 20 miles a week or reduce calorie intake and exercise moderately? Richard Washburn and co-workers from the University of Kansas Medical Center in Kansas City performed a detailed literature review of studies published between 1990 and 2013. Caloric restriction caused the greatest weight loss. Dieting was more effective than aerobics plus a normal diet or diet plus exercise. However, most studies included only about 30 minutes of exercise. In 2005, the U.S. Department of Agriculture guidelines recommended one to one-and-a-half hours of aerobic exercise per day for people wanting to lose weight or maintain lost weight. This was based on doubly labeled water studies that precisely measured the minimum amount of exercise necessary to lose weight. Few people are willing to do that much exercise. In the long run, people lost the most weight and maintained lost weight best when they combined diet and exercise. (PLOS ONE 9(10): e109849, 2014)

## 6. Jet Lag Promotes Obesity

Flying sucks! Combine cramped seating, long lines at the security gates, flight delays, high prices, limited baggage allowance and cabins packed with disease-ridden passengers and you have the perfect storm for a miserable day. Christoph Thaiss and co-workers from the Weizmann Institute of Science in Israel, in a study on mice, found that jet lag promotes obesity by altering the microbes in the gut. Crossing time zones throws off the normal feeding patterns of the microbes that bias the metabolism toward fat storage. This study might explain why shift workers and frequent fliers have an increased risk of the metabolic syndrome— a group of symptoms that include high blood pressure, high blood fats, abdominal obesity, poor blood sugar regulation and inflammation. (Cell 159: 514-529, 2014)

## 7. Drinking Water Before Meals Promotes Weight Loss

An easy way to lose weight is to drink a pint of water before major meals— according to a study led by Helen Parretti from Oxford University in the U.K. Thirty minutes before each major meal, people drank a pint of water (water group) or imagined their stomachs were full (think group). After 12 weeks, the water group lost 5.3 pounds and the think group lost 2.6 pounds. Drinking water before meals is a simple, safe and effective way to lose weight. Weight loss from drinking water before meals three times a day was similar to that achieved with commercial weight-loss programs. It is not known if pre-meal water consumption will cause long-term weight loss. (Obesity, 23: 1785-1791, 2015) »



## 8. Melatonin Helps Cut Fat

Melatonin is a hormone produced by the pineal gland in the brain that promotes sleep. It is produced cyclically in response to darkness and light. Supplementing melatonin might promote weight control—according to the results of a study on mice by Italian researchers. Lean and obese mice were given melatonin or a placebo in their drinking water for eight weeks. Melatonin reduced weight, fat storage area and reversed fat tissue enlargement in the obese mice, but not the lean mice. It worked by decreasing inflammation and normalizing adipokines, which are important fat-signaling chemicals. It also activated brown fat and enhanced energy expenditure. Melatonin supplements help promote sleep and weight control. (Nutrition Research, 35: 891-900, 2015)

## 9. High-Intensity Interval Training Promotes Appetite Control

High-intensity interval training (HIIT) involves repeated repetitions of high-intensity exercise lasting 10 to 180 seconds, followed by rest or reduced exercise intensity. HIIT produces rapid improvements in endurance, maximal oxygen consumption, glycogen storage and muscle cell mitochondria (cell powerhouses) in less time than traditional exercise training. Its effects on obesity and weight control are not totally understood. Aaron Sim and colleagues from the University of Western Australia found that HIIT practiced for 12 weeks reduced appetite in overweight, inactive men better than continuous exercise. The HIIT program consisted of repeated bouts of exercise on a stationary bike for 15 seconds at maximum intensity, followed by one minute of rest. Traditional training involved 30 to 45 minutes of continuous exercise on a stationary bike at 60 percent effort. Appetite was assessed during test meals. The HIIT group showed improvements in appetite regulation during the test meals, while there were no changes in the traditional exercise group or controls. HIIT also improved blood sugar regulation. HIIT is a good training method for weight control and management of insulin sensitivity. (Medicine Science Sports Exercise, 47: 2441-2449, 2015)

## 10. Regular Exercise Maintains Daily Caloric Expenditure After Weight Loss

More than 66 percent of Americans are obese or overweight. Obesity increases the risk of heart disease, stroke, back pain, poor metabolic health and premature death. A recent Gallup poll found that 51 percent of Americans want to lose weight, while only 26 percent are making a serious effort to do so. Weight maintenance is extremely difficult. Ninety-five percent of people who lose weight will gain it back again within a year. One reason for this is that metabolic rate slows after weight loss, making it extremely difficult to maintain the losses. An important study led by Gary Hunter from the University of Alabama at Birmingham showed that aerobic or resistance exercise helps maintain metabolic rate after weight loss. Researchers studied physically inactive, obese middle-aged women who lost an average of 25 pounds. One group did aerobics, another group lifted weights, while another was sedentary. The exercise groups, particularly the resistance trainers,

were able to maintain metabolic rate (calorie burning) after weight loss, which is extremely important for preventing weight regain. (Medicine Science Sports Exercise, 47: 1950-1957, 2015)

## 11. Dairy Foods But Not Calcium Supplements Promote Fat Loss

Several large population studies found that dairy food consumption was linked to lower body fat. As expected, the dairy industry jumped on these findings to promote their products. These studies didn't find that eating more dairy foods will make people thinner—only that dairy consumption is related to lower body fat. Alison Booth and colleagues from Deakin University in Australia performed a meta-analysis that pooled the results of studies on the effects of dairy consumption and calcium supplements on bodyweight and body composition. Calcium supplements had no effect on weight or fat loss. Dairy consumption as part of a reduced-calorie diet, on the other hand, caused fat loss but not weight loss. The researchers concluded that in the short term (four months), including three daily servings of dairy might promote fat loss. (British Journal Nutrition, 114: 1013-1025, 2015)

## 12. Low-Fat Diets Don't Work

During the past 35 years, nutritional experts have advised people to cut down the amount of fats they consume. The origin of this recommendation was the United States Senate Select Committee on Nutrition and Human Needs Committee chaired by former U.S. Senator George McGovern (1968 and 1977). This productive committee established reduced intake of fats and increased consumption of carbohydrates as national goals. Americans took this advice to heart, and obesity rates went through the stratosphere. Deirdre Tobias and co-workers from Brigham and Women's Hospital and Harvard University conducted a meta-analysis that pooled the results of 53 randomized trials on the effects of low-fat diets on long-term weight loss. Low-fat diets do not cause more weight loss than diets higher in fat. Fat has been demonized for nearly half a century, based more on political considerations than scientific fact. (The Lancet Diabetes & Endocrinology, 3: 968-979, 2015)

## 13. Intermittent Fasting for Weight Loss

Success in many sports requires minimal body fat and lean muscle mass. Intermittent fasting might help athletes achieve this goal—according to an article by Grant Tinsley, Joshua Gann and Paul La Bounty. Athletes must make weight in sports like weightlifting, powerlifting and martial arts. Constant dieting can sap energy and trigger glycogen depletion in the muscles and liver, which makes it difficult to train hard. Intermittent fasting, involving periods of fasting and non-fasting, might help athletes lose weight and maintain energy for intense training. Fasting every other day or even once a week results in a calorie deficit over time that promotes fat loss. Modified fasting allows athletes to consume some calories, which might be more realistic and palatable. Short fasts are best for athletes because they don't cause significant muscle loss. Athletes can fast on non-exercise days so they have plenty of energy



for physical activity. We don't completely understand how intermittent fasting affects performance. (Strength and Conditioning Journal, 37: 60-71, 2015)

## 14. Fat Burning Greatest After an Overnight Fast

Exercising following an overnight fast will burn more fat than exercising after breakfast, according to Korean researchers. Test subjects reported to the laboratory for a 30-minute treadmill run, either fasted or after breakfast. When fasted, blood sugar was lower and free fatty acids, growth hormone and cortisol were higher than when the subjects ate breakfast. Consistently exercising while fasted in the morning should result in greater fat burning and fat loss than exercising after breakfast. (Journal of Physical Therapy Science, 27:1929-1932, 2015)

## 15. Wakame Seaweed Fights Fat

Wakame (brown) seaweed contains a chemical called fucoxanthin (FX) that inhibits fat cell growth and promotes fat release. A review of literature by scientists from the Ukraine and Korea noted that most studies on FX have examined its effect on rats and mice. To date, no large-scale studies have been done in humans. Animal studies have shown that FX reduces total body fat and abdominal fat, promotes blood sugar control, prevents fat accumulation in the liver and improves the blood fat profile. Some studies have found that FX increases brown fat activation and increases energy expenditure. Brown seaweed is a natural product with no known toxic effects. (Nutrition, Metabolism & Cardiovascular Diseases, published online June 3, 2015)

## 16. Chili Ingredient Is an Effective Fat Fighter

Capsaicin (a capsaicinoid) is the chemical that puts the zing in chili peppers. Supplements containing capsaicin increase caloric expenditure for several hours and might be useful as a weight-loss supplement. Capsaicin works by increasing levels of the "fight-or-flight" hormone epinephrine (adrenaline), which speeds fat use and increases metabolism. A study on mice by Baskaran Thyagarajan from the University of Wyoming, and colleagues, showed that increasing capsaicin in their diet prevented obesity by increasing energy expenditure and metabolism. Most studies show that capsaicin increases daily caloric expenditure by four to five percent and fat use by 10 to 16 percent. It is not a magic

bullet that triggers massive weight loss, but helps promote weight control over time. (Study presented at Biophysical Society Annual Meeting, February 8, 2015)

## 17. Low Vitamin D Levels Prevent Weight Loss

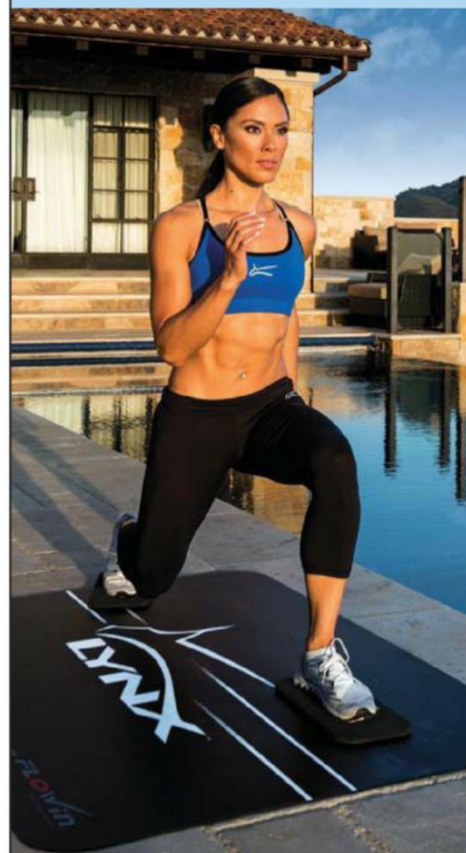
Vitamin D deficiency is 35 percent higher than normal in obese people, and 24 percent higher in overweight people—according to a meta-analysis by Brazilian researchers. Vitamin D deficiency can make it difficult to lose weight. The initial vitamin D level is a good predictor of weight loss during calorie restriction. People with low vitamin D levels have difficulty losing weight, while those with the highest levels lost the most weight. People should get 400-800 units of vitamin D from the diet, supplements or sun exposure. Low vitamin D levels are a problem in many people because they spend much of their time indoors and shun vitamin D-fortified milk in favor of other beverages. (Obesity Reviews, 16: 341-349, 2015)

## 18. High Iron Levels Linked to Obesity

High blood iron, as measured by ferritin, is a marker of poor metabolic health and is associated with an increased risk of heart attack. An Italian study found that high iron levels reflect total body inflammation. They found a relationship between body mass index (weight in proportion to height) and blood iron levels. Blood iron levels decreased during weight loss caused by low-calorie dieting. Blood iron levels were also linked to high blood triglycerides and abnormal liver function. (Nutrition, Metabolism and Cardiovascular Diseases, published online March 4, 2015)

## 19. Sleep Deprivation Increases Obesity Risk

Lack of sleep disrupts energy balance, which determines whether you gain weight, lose weight or stay the same—according to a literature review and meta-analysis conducted by David Allison and colleagues from the University of Alabama at Birmingham. Sleep deprivation increases a hormone called ghrelin, which promotes appetite. It also reduces leptin, a hormone that normally suppresses appetite. Some studies have found that inadequate sleep increased the risk of obesity by 200 percent. Inadequate sleep was also linked to diabetes and high blood pressure. Sleep disturbances are surprisingly common in children and adults and can cause serious health problems, such as memory loss, coronary artery disease, stroke and daytime sleepiness— and contribute to >>



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automobile and workplace accidents. See your physician for a sleep study if you have insomnia, snore loudly, stop breathing for 20 seconds or more during sleep or wake frequently at night. (Obesity Reviews, 16: 771-782, 2015)

## 20. Hot Tub Therapy Protects Against Insulin Resistance

Sitting in a hot tub after a monster workout is one of life's great pleasures. Pain from sore muscles and joints seems to melt away. A review of literature by scientists from the Federal University of Rio Grande do Sul in Brazil found that heat therapy from a sauna or hot tub could help fight metabolic and cardiovascular disease. Heat therapy reduces fasting blood sugar, glycated hemoglobin (a measure of long-term blood sugar control) and body fat. It also increases nitric oxide secretion, which is an important chemical regulating blood flow. Heat therapy increases heat shock protein 70, which improves insulin sensitivity, prevents fat accumulation and suppresses inflammation. Sitting in a hot tub has measurable beneficial effects on health. (Current Opinion Clinical Nutrition Metabolic Care, 18: 374-380, 2015)

## 21. High-Protein, Low-Calorie Diets Promote Weight Loss

High-protein diets are effective for preventing or treating obesity because they increase metabolism, suppress appetite and reduce caloric intake—according to a literature review led by Heather Leidy from the University of Missouri School of Medicine, and colleagues. Comparisons of weight-loss diets high in carbohydrates, protein or mixed nutrients consistently show that the high-protein diets are most effective for weight loss. As expected, high-protein diets are most effective in people who actually adhere to the weight-loss program. High-protein diets contain between 1.2 and 1.6 grams of protein per kilogram of bodyweight. Each meal should contain 25 to 30 grams of protein. (American Journal of Clinical Nutrition, published online April 29, 2015)

## 22. Substituting Protein for Carbs Promotes Long-Term Fat Loss

Glycemic load is a measure of how much a food increases blood sugar over time. Foods such as refined grains, starches and sugars have a high glycemic load and promote weight gain. Decreasing the glycemic load by increasing protein intake could have a significant effect on long-term weight control—according to a Harvard University study led by Jessica Smith. Changing the dietary composition toward more protein and away from simple carbohydrates may be just as important as counting calories for weight loss. Foods such as yogurt, seafood, skinless chicken and nuts are good choices for weight reduction. (American Journal of Clinical Nutrition, published online April 8, 2015)

## 23. New Role For Brown Fat in the Control of Metabolism

Scientists have known about brown fat for years. However, it was only recently that we discovered its importance in human physiology. Unlike white fat, brown fat dissipates energy as heat instead of storing it as fat. Activating brown fat increases calorie burning, reduces whole-body fat and

lowers blood sugar and blood fat levels. New research shows that brown fat also secretes chemicals that help regulate metabolism. Exposure to cold is the best way to increase brown fat stores. However, exercise can make regular fat cells more like brown fat, which would promote weight control. (Trends in Endocrinology & Metabolism, 26: 231-237, 2015)

## 24. Brown Fat Activation Cuts Cholesterol and Protects Against Heart Disease

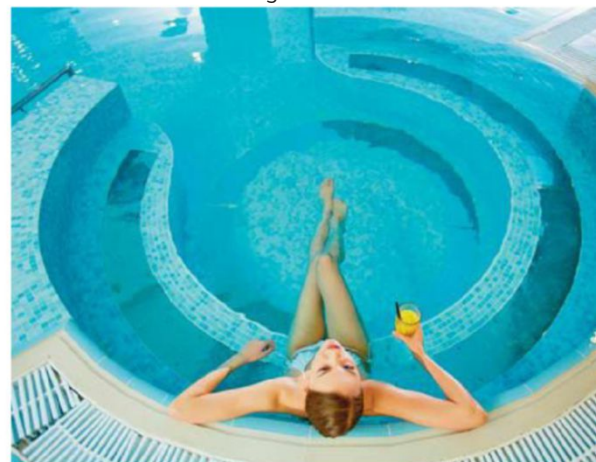
Brown fat helps control bodyweight and may help explain why some people are more prone toward obesity than others. Brown fat is a highly thermogenic fat cell that dissipates energy as heat instead of storing it as fat. Hibernating animals have large amounts of brown fat to keep them warm during the winter. Recent studies have shown that humans also have brown fat, located mainly around the heart and spine and interspersed with white fat cells. A Dutch study found that activating brown fat lowers cholesterol, and protects the body against atherosclerosis in the coronary arteries of the heart and blood vessels of other tissues. Brown fat activation increases in response to cold environments. (Nature Communications, published online March 10, 2015)

## 25. Fat-Modified Mediterranean Diet Promotes Weight Loss

The Mediterranean diet has positive effects on metabolic health and preventing obesity. A large study of nearly 500,000 men and women—aged 25 through 70 who were living in 10 European countries—found a reduced risk of abdominal obesity in people who followed the Mediterranean diet. The diet is high in vegetables and unsaturated fatty acids. Common foods include olive oil, pasta, fruits, vegetables, lean meats, fish, nuts and red wine. People living in Mediterranean countries have the lowest heart disease rates and greatest longevity in the world. Diet may play an important role in their excellent health.

The Mediterranean diet can be difficult for people not used to some of its foods. A German study found that feeding middle-aged, obese people a Mediterranean diet modified with butter-flavored canola oil, walnuts and walnut oil with calorie-controlled, daily sweet snacks promoted weight loss. People do better adhering to low-calorie diets when they eat familiar foods. Providing limited snacks and familiar foods helps people avoid cravings associated with weight-loss diets.

(European Journal of Clinical Nutrition, published online February 18, 2015) ■





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● BY BRET CONTRERAS, Ph.D. CSCS

# DAILY 10-MINUTE GLUTE-BLASTING CIRCUITS

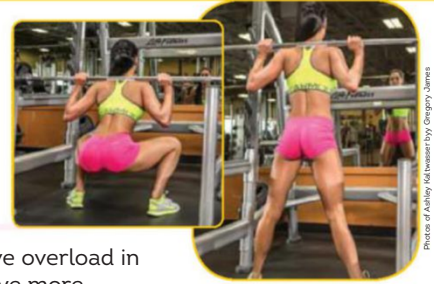
**Over the past year, I've been experimenting with an innovative strategy with my clients, and the results have been outstanding.** In fact, one of my clients believed that she saw better results in one month of adding in these circuits than she had in the previous six months of heavy resistance training. The glutes can handle a lot of volume, and most exercisers fail to achieve their full potential because they fail to work the glutes thoroughly during their typical training weeks. Before I describe the workouts, let me first delve into some muscle science.

According to muscle hypertrophy expert Dr. Brad Schoenfeld, muscle grows primarily from three mechanisms: mechanical tension, metabolic stress and muscle damage. Mechanical tension can be thought of as the amount of force the muscle produces while being worked. Metabolic stress is being produced in high amounts when you achieve a serious burn or pump in the muscles. And you know you've elicited muscle damage when you're sore one to two days after your bout of training.

When training in the gym, I recommend utilizing a variety of rep ranges but always making sure to strive to do more

over time. Progressive overload in the form of adding five more pounds to the bar or squeezing out another rep every week or two ensures that you continuously place increasing tension on the muscles over time. Let's say you train your glutes two to three times per week at the gym with free weights— you want the focus of these sessions to be on setting personal records (PRs) and exposing the glutes to large amounts of tension. Tension is the most important driver of muscular growth, so be sure to hammer your barbell hip thrusts, squats and deadlifts.

However, mechanical stress is also very important and can add significantly to the overall growth stimulus. Therefore, performing separate sessions with light loads for high reps can enhance your training and lead to better results— this has been elucidated in the research. These light load sessions do not need to be carried out in the gym since bodyweight, light dumbbells and mini-bands can be used for resistance. Conducting mini-sessions from home increases compliance since they can quickly and conveniently be performed at any time during the day.



Photos of Ashley Kildresser by Gregory James

## THE CIRCUITS

AND NOW FOR THE PART YOU'VE BEEN WAITING FOR— THE WORKOUTS. WHEN I FIRST STARTED PRESCRIBING THESE 10-MINUTE GLUTE-BLASTING CIRCUITS, I'D INCLUDE STRICT PARAMETERS (DO THIS EXERCISE FOR THIS MANY REPS, THEN THIS EXERCISE, ETC.). AFTER DISCUSSING THE WORKOUTS WITH MY CLIENTS AND TRYING SOME OF THEM MYSELF, I REALIZED THAT INCLUDING REPETITION SUGGESTIONS WAS OFTEN COUNTERPRODUCTIVE. THE GOAL OF THESE WORKOUTS IS TO FEEL THE BURN AND OBTAIN A GLUTE PUMP— NOT TO ACHIEVE A SPECIFIC NUMBER OF REPETITIONS. ANYWHERE FROM 10-50 REPS PER EXERCISE IS FINE. YOU DON'T NEED TO TAKE THE SETS TO FAILURE; YOU JUST NEED TO USE STRICT FORM AND FOCUS ON FEELING THE EXERCISE WORKING THE PROPER REGION OF THE MUSCLE YOU'RE INTENDING TO WORK.

FOR THIS REASON, I NOW SIMPLY SELECT FIVE TO 10 EXERCISES TO PERFORM IN CIRCUIT FASHION, USUALLY ALTERNATING BETWEEN HIP EXTENSION EXERCISES AND HIP ABDUCTION EXERCISES. THE SESSIONS ALWAYS END UP LASTING APPROXIMATELY 10 MINUTES, SO YOU DON'T NEED TO KEEP TRACK OF THE TIME. AGAIN, THE GOAL IS TO INDUCE A DEEP BURN IN THE GLUTES AND PUMP UP THE MUSCLES A BIT. BELOW ARE THREE SAMPLE CIRCUITS.

### BODYWEIGHT CIRCUIT

FEET ELEVATED GLUTE BRIDGE  
SIDE LYING HIP ABDUCTION  
ALTERNATING REVERSE LUNGE  
SIDE LYING CLAMSHELL  
FROG PUMP  
FIRE HYDRANT  
QUADRUPED HIP EXTENSION

### MINI-BAND CIRCUIT

SQUAT WITH BANDS AROUND KNEES  
SUMO WALK  
SINGLE-LEG GLUTE BRIDGE  
MONSTER WALK  
REVERSE HYPER WITH BANDS AROUND KNEES  
BAND SEATED HIP ABDUCTION  
HIP THRUST WITH BANDS AROUND KNEES

### DUMBBELL CIRCUIT

ALTERNATING DEFICIT REVERSE LUNGE  
RKC PLANK  
GOBLET SQUAT  
SIDE LYING HIP RAISE  
DUMBBELL GLUTE BRIDGE  
QUADRUPED HIP CIRCLE  
DUMBBELL SWING

Explanations to many of these exercises can be found on my YouTube page. As you can see, I included a circuit that involves just bodyweight exercises, another that includes mostly mini-band exercises and another that involves mostly light dumbbell exercises. I encourage you to mix and match the exercises in these circuits to suit your preference and equipment availability.

If you're feeling good, you can repeat the circuit and perform the exercises twice through, or simply tack on another exercise or two at the end. I recommend that you perform these supplemental workouts three to six times per week. Make sure that these circuits complement your gym training. If you push yourself too hard, you could interfere with your gym training sessions, which is not ideal. Stimulate, don't annihilate, and get creative and experiment to figure out your own ideal circuits. ■

*Bret Contreras is the founder and owner of the world-renowned research and training facility, The Glute Lab. Considered by many as the world's foremost expert on glute training, Bret is also the inventor of the glute-sculpting machine called the Hip Thruster, the coauthor of Strong Curves, the author of Bodyweight Strength Training Anatomy, the cofounder of Get Glutes, the cofounder of Strength & Conditioning Research, and editor in chief of Personal Trainer Quarterly. Bret obtained his Ph.D. in sports science at AUT University. Check out Bret's popular blog at [www.BretContreras.com](http://www.BretContreras.com) and his FitnessRx online column at [www.fitnessrx-women.com/author/bret-contreras](http://www.fitnessrx-women.com/author/bret-contreras).*

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## MAKING THE FIT LIFE A HABIT

If it was simple, everyone would do it. Sure, people say to “make time for what’s important to you,” but oversimplification doesn’t make it any easier. In this month’s column, I want to discuss the mental walls keeping you from taking care of yourself, whether it’s time management, stress, a busy job, bustling family life or something else.

Remember, it is normal to struggle every once in a while, and very few people spring out of bed one day and say, “I’m going to change my behavior for the better for the rest of my life,” and then do it and never look back. With that said, here are some things to keep in mind:

- 1. Don't be too hard on yourself.** This is the cycle many of you know: you start something with good intentions, struggle, get frustrated and give up. Be nice to yourself—stumbles and failures are going to happen, and perfection does not exist.
- 2. Don't get caught up in the “all or nothing” mindset.** Doing something is better than doing nothing. Do what you can and do it consistently—getting started is everything.
- 3. Find your own method of doing things.** Look for your own combination of tools, tips, techniques and advice that will support you and your health and fitness goals. You’re in this for you—no one else, and you’re the only one who’ll know what really works. Try different methods along the way and don’t get distracted by what everyone else is doing.
- 4. Be realistic and start small.** If you set goals you cannot stick to, you will give up and be even more frustrated because you feel like you failed. Whatever it is, start with something you can definitely do effortlessly and then add to it over time.
- 5. Eat breakfast daily.** Individuals who start their day off with breakfast have a reduced risk of weight gain. Get in the habit of eating a smart breakfast that is substantial enough to fuel your energy all morning. Smart breakfast choices include a good balance of healthy fat, lean protein and carbs, like an egg white omelet and oatmeal with flax seeds.
- 6. Listen to your internal hunger cues.** With external cues—morning meetings with doughnuts, the candy bowl in the conference room or the popcorn in your lap at the movie theater—people typically don’t think twice before indulging. Giving in all the time won’t help you achieve the fit life you are shooting for. Instead, try tapping into your internal hunger cues and question whether you’re even hungry before putting food in your mouth.
- 7. Don't wait too long between meals.** When going too long without eating to the point you are starving, it increases your chances of making an unhealthy food choice. Consuming regular meals anywhere from two to four hours apart can help you make healthier choices all day long.
- 8. Eat most meals from home.** When you eat most of your meals out, it is much harder to track servings sizes. Aside from that, you are also not in control of how food is prepared. Most restaurants add oils and sauces, which can add hundreds of hidden calories to each meal.
- 9. Get adequate sleep.** Research has shown that sleep habits influence people’s dietary habits. The longer you are awake and tired, the more likely you are to eat. Aim for seven to eight hours of sleep per night and get on a good regular schedule.
- 10. Make it fun!** If you want to stick with it, you have to enjoy doing it!
- 11. Track your progress.** Try keeping a calendar or a fitness journal as a visual track of your victories. Each time you stick to your plan, whether it’s diet, exercise, or both, mark it on the calendar. The goal is to keep that track record going unbroken as long as possible.

Whether it’s diet or exercise, being honest with your current situation will keep you from being too ambitious and setting yourself up for failure, or from giving up entirely. Begin where you are, not where you want to be. Becoming overwhelmed initially is the fastest way to halt all progress. Many people assume there’s some mystifying secret to weight loss. When looking at fit celebrities, and even neighbors or co-workers, men and women commonly ask: “What’s their secret?” or “How can I look like that?” While searching for these “secrets,” people often overlook the simplicity of adopting healthy lifestyle habits that support a physically fit body and STAYING CONSISTENT! While different strategies work for different people, individuals who effectively maintain a lean shape over time stick to similar eating and activity habits. Make healthy habits and stick to it! ■

Visit [www.nicolewilkins.com](http://www.nicolewilkins.com) for full-length workout videos, recipes, meal plans and much more— including Nicole’s NEW clothing line! For more information and locations for PHAT Fitness Camps for women of all ages and athletic abilities hosted by Nicole Wilkins, check out [www.getphatwithnicole.com](http://www.getphatwithnicole.com)!

Nicole Wilkins is three-time Figure International and four-time Figure Olympia champion, as well as a Met-Rx sponsored athlete and certified personal trainer. For more with Nicole, check out “The Fit Life” series on [www.fitnessrxwomen.com](http://www.fitnessrxwomen.com). You can also follow Nicole on Facebook, and Twitter: @Nicole Wilkins.



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## NO MATTER HOW HARD I TRY, I CAN'T SEEM TO INCREASE LEAN MUSCLE. HOW MUCH SHOULD I BE EATING IN ORDER TO ACCOMPLISH THIS?

The amount of food that you should be eating to increase your muscle mass will vary from person to person and activity level. Make sure that you are eating balanced meals and that you are not in a calorie deficit. It's much harder for the muscles to recover and build without proper caloric intake. Calories = energy, energy = great workouts! Make sure that you are consuming plenty of protein and also whole foods that are nutrient-dense. Eliminate as many empty calorie foods as you can. Do not fear carbs. I would schedule your carb intake around your workouts. For example, be sure that you have a serving of carbs both before and after your workout for optimal recovery. On days that you work large muscle groups, like legs for example, you should increase your carb intake to even higher than normal for the most benefits.

## I AM LOOKING INTO GETTING A PERSONAL TRAINER, BUT I'M NOT SURE WHAT TO LOOK FOR. WHAT ARE SOME QUALITIES OF A GOOD PERSONAL TRAINER?

Do your research. See what certifications this person has and what sorts of people he has worked with in the past. What motivates you to get the job done in the gym?

Someone who is positive and encouraging? Someone who is like a cheerleader? Or maybe it's someone who gives you tough love? Perhaps someone who is like a drill sergeant and doesn't put up with nonsense or complaints? Find someone who motivates you and can accommodate your individual needs.

## I AM TRAINING FOR A MARATHON BUT WANT TO KEEP AS MUCH MUSCLE AS I CAN. ANY ADVICE?

As you can imagine, marathon training isn't ideal for maintaining muscle mass. But there are things that you can do to minimize the chances of losing muscle. As you may or may not know, runners LOVE carbs! Actually come to think of it, who doesn't? Ha! Runners thrive off carbs for good reason. Carbohydrates, specifically glucose, keep you fueled during a run. Glucose is converted into energy that contracts exercising muscles. The more intense the run is, the more glucose you use up. Therefore, your diet should consist of more carbohydrates than the average gym-goer.

Be sure that you are not overtraining. Just like anything in life, too much of a good thing can be detrimental. Give your body at least one solid day of rest per week.

## WHAT ARE SOME GOOD STRETCHES FOR INCREASING OVERALL FLEXIBILITY? HOW OFTEN SHOULD I STRETCH?

I would recommend stretching after every workout. If you're feeling sore or tight before you train, be sure to stretch beforehand as well! Flexibility is an important part of injury prevention. Be sure to hold each stretch for at least 30 seconds! Try some of these stretches for overall flexibility:

- The low lunge arch: Step one foot forward into a lunge and lower the opposite knee onto the ground. Reach your arms in front of your leg and interlace your fingers together so that your hands connect. Proceed to reach your arms overhead and stretch as far back and feel the stretch!
- The forward hang: Place your feet hip-distance apart with a soft bend at the knee. Grab your hands behind your back. Straighten your arms to expand your chest. Bend at your waist, and let your hands stretch toward your head.
- The standing side stretch: Start by standing with your feet together and your arms straight overhead. Interlace your fingers together and reach upward. Next, bend your upper body to the left. Hold this position and then switch to the opposite side. ■

*Have a question for Ashley? Email it to [editor@fitnessrxwomen.com](mailto:editor@fitnessrxwomen.com).*

*IFBB Bikini Pro Ashley Kaltwasser is the 2015 Bikini Olympia Champion. Ashley believes that serious fitness doesn't have to be boring. Be sure to check out Ashley's "KEEP IT FRESH" column on [FitnessRxWomen.com](http://FitnessRxWomen.com), where she shares ways to keep your training and nutrition fun and flavorful. Follow Ashley on Twitter @AshleyKFit and Facebook. For sponsorship, appearances, etc, contact Fitness Management Group.*

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**I AM CONSTANTLY HUNGRY, AND CAN'T SEEM TO GET IT UNDER CONTROL. I WORK OUT DURING THE WEEK, BUT I AM BINGING AFTER MY WORKOUT. WHAT DO I DO?**

You cut that nonsense out immediately, that's what you do! Here are a few tried and true approaches:

Have a glass of room temperature water every hour. Room temperature water has been shown to quell the appetite while cold water stimulates the appetite. Regardless, getting adequate water is of huge importance but vis-à-vis appetite control, room temp is the way to go.

Add an amino acid supplement to your "intra-workout" beverage. The aminos will help with appetite control as well as help to stave off catabolism so you are not a fitness Sisyphus. Say that three times fast...

When you do get to your post-workout meal (hopefully within 30-60 minutes after you finish training!) make sure to eat the protein first, as that will put your cravings in check and reduce the likelihood of sabotaging the hard work you just put in.

**I HAVE BEEN TOLD THAT MY POSTURE NEEDS A LOT OF WORK, AND MY UPPER SHOULDERS AND NECK AREA ARE ALWAYS FILLED WITH TENSION. WHAT EXERCISES DO I NEED TO PRACTICE IN THE GYM TO CORRECT MY POSTURE AND AVOID NECK AND SHOULDER PAIN?**

I feel your pain! I would spend some time on a foam roller—both horizontally and vertically. By that I mean rolling with it perpendicular to your spine and then lying on it with your spine running the length of it. Put your coccyx at the end of it and focus on your breathing. Once that's under control, bring your arms up and out so your palms are facing the ceiling at about ear level and your elbows are bent at 90 degrees. Now breathe. It will take a second, but you will be able to relax into it over time.

As for exercises, try some scapular retraction movements while facedown on a bench using dumbbells, or standing using bands, or hanging. Try them IN THAT ORDER so that you can build up to the increasing level of difficulty!

## WHAT SHOULD I DO IF ONE SIDE IS MORE DEVELOPED THAN THE OTHER, LIKE LATS? HOW DO I BALANCE IT OUT?

Assuming the condition is muscular (caused by disproportionate work/use) you can skew your training by adding additional reps/weight to the less-loved side. First, identify the cause. Are you extremely one-side dominant to the point where you do EVERYTHING with your dominant side? Do you always carry or push or pull something of significant size/weight with one side and never vary it—backpack, purse, toddler, drunken spouse? Do you participate in a sport that has you working that side exclusively—tennis, golf, pitching, curling? Please tell me you know what curling is...

Once you've solved the puzzle, try to swing the pendulum (and the racket) to the other side. Be conscious of the work you put in on that "other" side. Shoot for quality reps, not catch-up reps. Try adding five additional reps per set (per movement that affects that area). Drop the weight if necessary. You'll get there. If, in fact, the imbalance is neurological in nature (could be the result of an old injury, car crash, repeated impact in sport) I would suggest consulting a neurologist and going from there. No matter what, once you take action, you will see some change. Even if it's just a wee bit, it will make a world of difference in your training.



## WHAT VITAMINS/SUPPLEMENTS SHOULD YOU CONSUME EVERY DAY IF YOU ARE VERY ACTIVE AND LIFTING HEAVY?

Probably a better question for a nutritionist or a GP (general practitioner—your doctor, not Gunnar Peterson!) than a trainer, but I'll tell you what I tell clients because it's what I do, so it's tried and true on a focus group of ONE! I take a multivitamin as my "safety net." My diet is clean and in theory I'm getting everything I need nutrient wise, but since I am not always "farm to table," the multivitamin is my insurance policy. I take extra glutamine (with food to avoid nausea) because I lift weights six days a week and that helps my recovery. I take a B12 supplement because I push myself in the gym when I'm training AND as a trainer, and the B12 helps keep me going and protects me from all the strains of cold/flu/whatever that I come in contact with between clients and my own kids, who go to schools on three different campuses. And I NEVER get sick. Yeah, I said it and I'm not worried that I'm inviting it! I also take BCAAs (branched-chain amino acids) throughout the day to help maintain a positive nitrogen balance and to avoid having my body go catabolic and using the muscle tissue I work so hard for as a fuel source.

At the end of the day, you have to remember that supplements are just what the word means—something that completes or enhances, not something that replaces or corrects. This means you can't eat garbage and take supplements and think you're on track. Your goal should be to get what you need from your food choices, not playing catch-up with supplements. ■

**GOT A QUESTION FOR GUNNAR?**  
EMAIL IT TO:

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GUNNAR PETERSON IS A BEVERLY HILLS-BASED PERSONAL TRAINER WHOSE CLIENTS INCLUDE CELEBRITIES, PROFESSIONAL ATHLETES, AND EVERY-DAY PEOPLE. CERTIFIED BY THE NATIONAL STRENGTH AND CONDITIONING ASSOCIATION AND A GRADUATE OF DUKE UNIVERSITY, GUNNAR HAS MORE THAN 20 YEARS OF EXPERIENCE IN THE FITNESS INDUSTRY AND REGULARLY OFFERS HIS EXPERT ADVICE IN NUMEROUS PUBLICATIONS AND IN TELEVISION APPEARANCES. FOR MORE INFORMATION, VISIT [WWW.GUNNARPETERSON.COM](http://WWW.GUNNARPETERSON.COM).

**I CHOOSE HEALTHY FOODS BUT I HAVE A TENDENCY TO OVEREAT THEM A LOT OF THE TIME. I FEEL LIKE THE MORE I WORK OUT, THE MORE RAVENOUS I BECOME. HELP?**

It's not uncommon for people who eat healthy foods to think that they are consuming fewer calories than they actually are from day to day. Healthy foods like nuts, avocado, grains, etc. can still pack a calorie punch, so it's important to keep tabs on your consumption. It's a good idea to pack single servings into containers and zip top bags. I also recommend using measuring cups and a food scale. Even if you've been diligent about measuring before, sometimes we become complacent and these portions become distorted. As for the increase in hunger, make sure you are sleeping at least seven to eight hours to be able to regulate your leptin levels, a hormone that tells your body you are full. Also, be sure to account for muscle growth. The more muscle you add to your physique, the higher your metabolism will be, requiring an increase in energy to function and perform, which translates to more food. Try increasing your portions ever so slightly, maybe 100 to 200 grams periodically, until you feel more satisfied.

**AS A MOTHER OF A TODDLER LIKE YOURSELF, I TEND TO EAT MY SON'S LEFTOVERS, SOMETIMES SEVERAL TIMES A DAY. DO YOU THINK THAT NIBBLING COULD BE SABOTAGING MY RESULTS? THANKS.**

Depending on what you are feeding your child, how much and how often you are nibbling, it most certainly can be sabotaging your efforts. The key to progress is to try to do better than you've currently been doing before. Realistically, since you are questioning this behavior, I think you know that if you were to cut it out it could make a positive difference. I know as parents we try to feed our kids healthy choices, but I also know that we often give them more latitude with treats than we do for ourselves. If you are eating the leftovers because you are feeling deprived and miss those goodies, try making a more healthful version of yours and your child's favorites like mac and cheese, cookies and the fast food go-to for many kids— french fries and nuggets. However, if the reason you are nibbling leftovers is because you hate to waste food, I'm afraid that this is something you will need to get over. The extra nibbling won't serve your waistline well over time, so just let it go into the garbage or compost.

**I'M SO FRUSTRATED! I KEEP GAINING AND LOSING THE SAME 10 POUNDS AND CAN'T SEEM TO BREAK THE CYCLE. I WATCH MY HUSBAND EAT WHATEVER HE WANTS AND NOT GAIN A POUND AND OFTEN FIND MYSELF CAVING IN. HOW CAN I STOP THIS HABIT?**

I'm sorry you are feeling so frustrated. I find that people who repeatedly lose and gain the same weight fail to devise a maintenance plan and eventually slip back into old habits. It's important to keep up some of the habits that made your weight loss successful in the first place. If you were lifting and doing cardio five days a week, try to keep that up at least two to three days a week and adjust your workout split to be sure to train all areas of the body in fewer days. If you kept a food diary, try to maintain that or at least attempt to keep a record on days that you know you tend to struggle more, like maybe the week-end. As for your husband, perhaps you could ask that he not bring tempting foods into the house and instead enjoy those while he's away? Also, consider experimenting with some recipes to create more healthful versions of yours and your husband's favorites. If you aren't able to get your husband on board, be prepared to measure out your portions and combine the more decadent options with larger sides of healthier ones. ■



**Have a question for Jamie? E-mail it to [editor@fitnessrxwomen.com](mailto:editor@fitnessrxwomen.com).**

JAMIE EASON MIDDLETON IS A FORMER NFL CHEERLEADER AND A FIGURE COMPETITOR. JAMIE HOLDS A BACHELOR'S DEGREE IN COMMUNICATION AND HAS APPEARED IN HUNDREDS OF MAGAZINES BOTH AS A MODEL AND A CONTRIBUTING WRITER. AS CREATOR OF THE POPULAR LIVEFIT TRAINER, JAMIE HAS HELPED HUNDREDS OF THOUSANDS OF PEOPLE REACH THEIR FITNESS GOALS.



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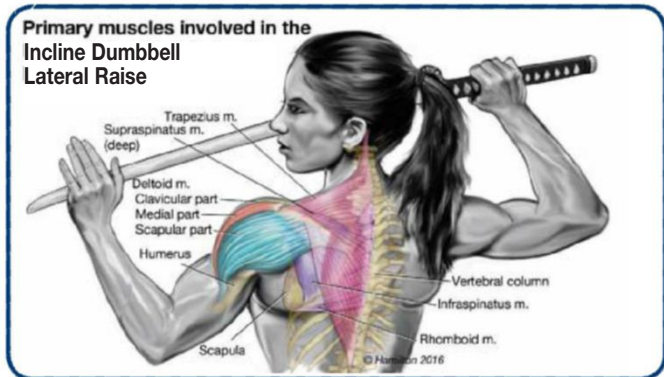
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**It is pretty easy to cover up underdeveloped shoulders and a weak upper back structure in the winter months.** However, there is a better way to handle a weak upper back structure and poor posture, and who wants to wear heavy sweatshirts or sweaters to the beach? Strengthening the posterior deltoid and the scapular muscles will get to the root of upper back weakness. While the posterior deltoid gets some indirect work from most back exercises, this is not enough to have great shoulders and posture.<sup>1</sup> Prone incline bench lateral raises with a dumbbell can hit the posterior deltoid directly and the muscles that tie into the spine and scapula,<sup>1</sup> which will supercharge your posture.

## PERFECT YOUR POSTURE AND POLISH YOUR SHOULDERS

# PRONE INCLINE BENCH LATERAL RAISES

### MUSCLES ACTIVATED

The deltoid muscle has three primary origins on the bony portions of the shoulder. The anterior fibers of the deltoid are anchored along the lateral part of the clavicle (collar bone).<sup>2</sup> The anterior fibers of the deltoid produce strong flexion of the humerus at the shoulder, whereas the medial fibers primarily produce abduction of the humerus (moving the arm laterally away from the body). The medial fibers of the deltoid originate from regions between the previous two origins along the acromion of the scapula (the point of the shoulder).<sup>2</sup> However, it is the posterior (rear) fibers or scapular part of the deltoid muscle that are primarily recruited to raise the arm posteriorly in the prone incline lateral raise.<sup>3</sup> The posterior (scapular) fibers attach along the spine of the scapula (shoulder blade), which is on the upper and posterior side of the scapula.<sup>2</sup> The posterior deltoid results in horizontal abduction of the humerus bone.<sup>4</sup> The fibers of the deltoid converge on the anterior and upper portion of the humerus bone of the arm.

The trapezius muscle covers the upper and middle of the back. The middle one-third of the trapezius muscle is strongly affected by prone incline bench lateral raises.<sup>2</sup> The middle parts of the trapezius extend laterally from the upper thoracic spine, to the posterior side of the scapula and clavicle bone. The fibers of the middle segment of the trapezius muscle "squeeze" the two scapula bones toward the midline of the body (adduction of scapula) during prone incline bench lateral raises.<sup>5</sup> The medial fibers of the trapezius mus-

cle lie over the rhomboid major and minor muscles. The rhomboids major and minor are strongly activated by prone incline lateral raises. These are deep muscles of the back that are medial to the scapula. The rhomboid muscle fibers begin along the midline of the back at the thoracic vertebrae and attach to the medial border of the scapula bone.<sup>2</sup> The larger rhomboid major muscle sits just below the smaller rhomboid minor muscle, but they are mechanically similar. Both rhomboid muscles adduct the scapula (squeeze the shoulder blades together) and rotate the scapula during the upward lift of the arms in prone incline bench lateral raises.

The infraspinatus and teres minor rotator cuff muscles stabilize the shoulder joint by keeping the head of the humerus in the glenoid fossa as the arm is being lifted.<sup>6</sup> The infraspinatus muscle fills the infraspinatus fossa of the scapula bone and it attaches to the humerus bone. The teres minor muscle attaches the upper border of the scapula to the greater tubercle of the humerus. Another of the rotator cuff muscles, the supraspinatus, lies in the supraspinatus fossa on the posterior side of the scapula bone.<sup>2</sup> It stabilizes the humerus bone in the upward lifting of the arm. It begins near the medial side of the scapula and runs over to the superior part of the head of the humerus bone. It lies deep to the trapezius muscle and part of it is deep to the coracromial arch and the acromion. The deltoid muscle covers the tendon of the supraspinatus.<sup>2</sup>

The shoulder is designed for maximum mobility, but this means that it also has a low level of joint stability.<sup>2</sup> Therefore, it is critical that all shoulder exercises are done carefully and correctly. This is because even small movements that are done incorrectly, can generate large and inappropriate forces through the shoulder joint, which could damage this delicate structure.

You should be able to feel your posterior deltoid and scapular muscles tighten even from the first repetition. Feeling the muscles working will help you control the movement in both directions. To increase the activation of the deltoid and rotator cuff muscles, rotate the upper arm so that the small finger points toward the ceiling at the top of the lift.<sup>3</sup>

If your day includes long periods of sitting (e.g., at a computer), you can end up with hunched shoulders and poor posture. Without strong posterior deltoids and scapular muscles, you could even develop neck pain.<sup>7</sup> Prone incline bench lateral raises will provide you a solution for obtaining great posture while also transforming your shoulders.<sup>3</sup> In addition, prone incline bench lateral raises will strengthen and therefore protect your rotator cuff muscles, so that your lifestyle can go on unhindered and injury free. When your shoulders and upper back are properly developed, you will want to shed all of that heavy winter clothing because your posture will be impeccable, and your shoulders will burst with shapeliness.

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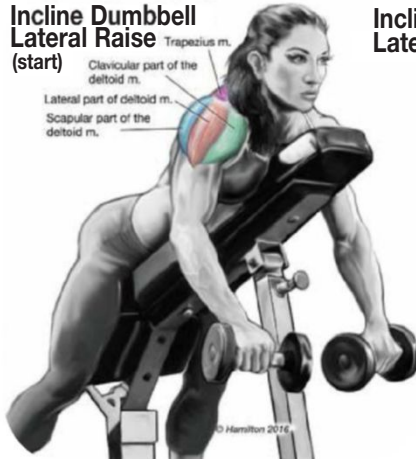
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## PRONE INCLINE BENCH LATERAL RAISE

1. Place a dumbbell on the floor under an incline bench. Lie prone (facedown) on this bench.
2. Lift the dumbbells from the floor. Bend your elbows just slightly, then raise the arms upward until the elbow reaches shoulder height. The height of elbows should be above the height of the dumbbells from the floor wrists throughout the upward lift.
3. Hold the top position for a count of two, then slowly lower the dumbbells toward the starting position.
4. Do not pause at the bottom or between repetitions, but immediately continue upward. The scapular muscles of the shoulder should be under constant tension from the beginning to the end of the exercise.

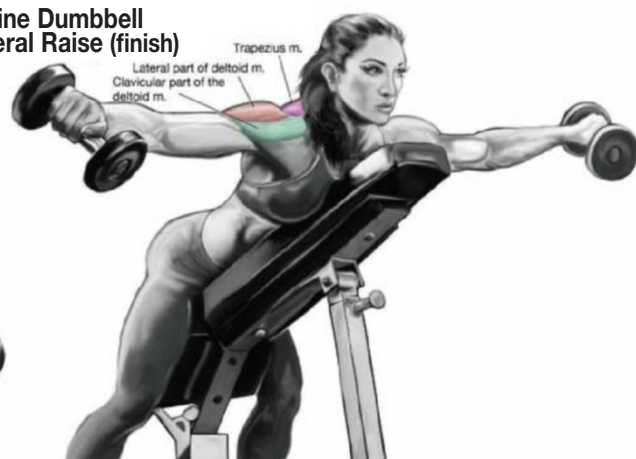
**Incline Dumbbell Lateral Raise (start)**

Trapezius m.  
Clavicular part of the deltoid m.  
Lateral part of the deltoid m.  
Scapular part of the deltoid m.



**Incline Dumbbell Lateral Raise (finish)**

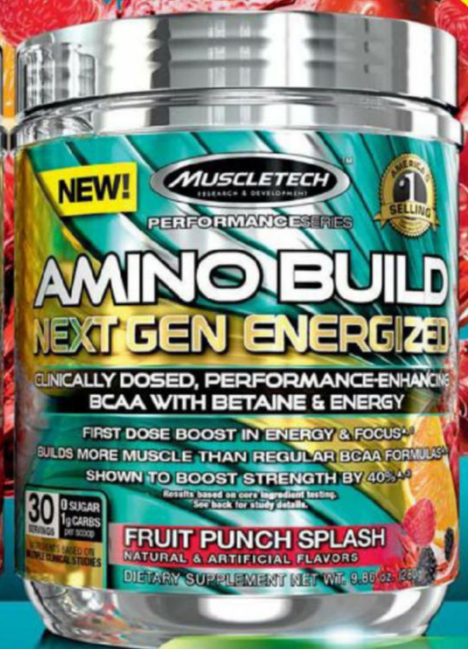
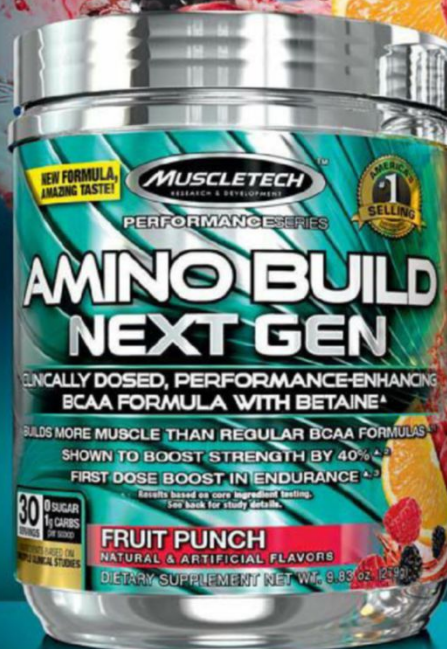
Trapezius m.  
Lateral part of the deltoid m.  
Clavicular part of the deltoid m.



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# GET OUTSIDE!

## CARDIO & BODYWEIGHT CIRCUIT TO BURN FAT FAST

The outdoor workout provided in this article, which requires no additional training equipment to perform except a grass field and a nice day, involves supramaximal interval training and a metabolic bodyweight training circuit.

This workout is not only designed to help you maximize the metabolic cost (so you can burn more calories both during and after the workout), but also to challenge you on multiple levels while allowing you to get outside and use the best piece of exercise equipment ever developed— the human body.

### Performing the Supramaximal Interval Training Portion of the Workout

Research has demonstrated that high-intensity interval training (HIIT) improves work capacity (i.e., conditioning), glucose metabolism and fat burning.<sup>1,2,3</sup> And, the most effective form of HIIT at improving fitness and performance may be supramaximal interval training (SMIT),<sup>4</sup> which is why this workout includes three SMIT options to choose from.

To perform this workout, choose one of the three following SMIT exercise for the parameters described. You'll then perform the metabolic bodyweight circuit in the following section.

#### SMIT OPTION #1: SHUTTLE RUN

**Set-up:** Place two cones 25 yards apart.

**Lengths are as follows:**

200-yard shuttle run = four round trips between the cones

250-yard shuttle run = five round trips

300-yard shuttle run = six round trips

Between rounds, use a work-to-rest ratio of 1:3 or 1:2, depending on your fitness level. For example, using a 1:3 ratio, if it takes you one minute to complete a 300-yard shuttle sprint, then rest for three minutes before starting the next round. Perform two to five rounds depending on your fitness level.

#### Coaching Tips

- You can start your shuttle runs from the starting line. However, I recommend jogging up to the starting point in order to reduce the potential risk of injury that can come from quick starts.
- Drive with your arms while sprinting.

#### SMIT OPTION #2: GASSER RUN

**Set-up:** Place two cones 50 yards apart.

**Action:** Jog up to the start cone, then run as fast as you can back and forth between the cones. Unlike in shuttle sprints, you don't touch the cones at the turns; therefore, you stay more upright.

Use a work-to-rest ratio of 1:3 or 1:2 between rounds, depending on your fitness level. Perform two to five rounds.

#### Coaching Tips

- You can start your gasser runs from the starting line. However, I recommend jogging up to the starting point in order to reduce the risk of injury that can come from quick

starts.

- Drive with your arms while running.



#### SMIT OPTION #3: HILL SPRINT

**Set-up:** Find a fairly steep hill at least 20 yards long. If you're lucky, you'll find one that is 40 yards or even longer.

**Action:** Run up the hill as fast as you can, then walk down slowly to set up your next run. Use a work-to-rest ratio of 1:3 or 1:4 between rounds, depending on your fitness level. For example, using a 1:3 ratio, if it takes you 20 seconds to complete a hill sprint, then rest roughly 60 seconds before starting the next round. Perform five to 10 rounds depending on your fitness level.

#### Coaching Tips

- Do not take short, choppy steps; take a full stride on each step.
- Drive with your arms while running.
- To vary your leg movement, you can walk backward down the hill between sprints.

### Performing the Metabolic Bodyweight Circuit Training Portion of the Workout

Not only does research demonstrate that the higher the intensity, the greater the metabolic impact,<sup>5</sup> which we took advantage of in the SMIT portion of this workout, but research also consistently reports that a direct relationship exists between the duration of exercise and excess post-exercise oxygen consumption (EPOC),<sup>6</sup> which is the number of calories expended (above resting values) after an exercise bout. In order to help you get the best of both worlds, this portion of the workout is designed to keep you moving for more extended periods of time than you did in the SMIT portion of the workout.

The following metabolic bodyweight training circuit combines various crawling type patterns, which we call "animal patterns," with various upright agility drills. You'll alternate between animal patterns (performed on the ground) and agility drills (performed standing), performing each animal pattern and agility drill pair twice through before moving on to the next pair of drills, which you'll also perform twice, and so on.

Each paired-set is done for a total of 20-30 yards up and 20-30 yards back for a total of 40-60 yards per lap. You'll perform each of the animal patterns for roughly 10 yards. You'll then stand upright and perform the agility drill for another 10 to 20 yards moving in the same direction. Then you'll turn around, and perform the same agility drill all the way back (20-30 yards) to where you started. Once completing this sequence twice through, you'll switch to performing a different animal pattern and a different agility drill twice through in the same manner, and so on.

The main goal is to finish this entire circuit— all of paired sets of animal patterns and locomotion drills— in as little time as possible, without sacrificing the quality of the technique demonstrated in any of the drills.

## ANIMAL PATTERN 1: TIGER CRAWL

On all fours, step off with your right foot and left arm, keeping your knees off the ground. Be sure to keep your hips and shoulders fairly level. Repeat on the other side. Continue moving forward, alternating sides.

## AGILITY DRILL 1: HIGH KNEE SKIPS

Stay tall, bend your knee and raise your upper leg until it's horizontal to the ground. Similar to jumping rope, the stride requires a double-foot strike pattern, or right-right followed by left-left hops. You also have to coordinate the pumping of your arms to the double-foot strikes.

## ANIMAL PATTERN 2: ALLIGATOR CRAWL

Starting in the push-up position, lower your chest slightly and bring your right knee to your right elbow. As you push up, reach your right arm forward and bring your left knee to your left elbow. Drop back into a partial push-up, and when you come up, reach forward with your left arm and bring your right knee to your right elbow. Repeat.

## AGILITY DRILL 2: BACKWARD RUN

Take long strides as you run backward while maintaining a relaxed upper-body and torso while you coordinate the pumping of your arms.

## ANIMAL PATTERN 3: RABBITS

With your feet wider than shoulder-width, squat down low and hinge forward at your hips, placing your hands in front of your feet. Lift your feet off of the ground and drive your legs forward so they end up outside your hands. Repeat this action, continuing to move forward.

## AGILITY DRILL 3: LATERAL SHUFFLE

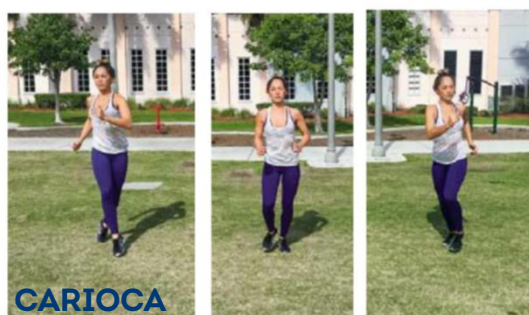
Assume an athletic-ready position with your feet hip-width apart and knees bent with your weight back in your flexed hips. Shift your weight toward your right, picking up your right foot and explosively pushing your left foot into the ground to start moving to your right. Continue to move to your right in this manner: picking up the right foot and placing it to the right while pushing the left foot into the ground to generate force and momentum for the sideways movement. Your feet should remain parallel with one another with the toes facing forward. Then, reverse the direction by shifting your weight over your left leg, push off with the right foot and begin shuffling back to the starting point.

## ANIMAL PATTERN 4: SPIDER CRAWL

Assume a push-up position, and move laterally. Your arms can cross, but not your legs. Don't let your hips sag and be sure not to lift your butt in the air any higher than your shoulders. Move 10 yards in the same direction. Then reverse the motion moving 10 yards back to the start.

## AGILITY DRILL 4: CARIOCA

Start with your feet a little wider than hip-distance apart, knees soft. Use your left foot to push off, crossing it behind the right foot and transferring your weight onto it. Move your right foot to the side until you're back to your starting stance. Now cross your left foot in front, stepping onto it. Move your right foot to the side. Continue moving to your right, crossing the left foot behind, then in front, until you reach the end of your planned distance. Then reverse your direction. ■



Photos by Nick Tumminello

Nick Tumminello is the owner of Performance University in Fort Lauderdale, Florida. He's also the author of the book *Strength Training for Fat Loss and the DVD by the same name*. For more information visit [www.NickTumminello.com](http://www.NickTumminello.com).

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# MIRACLE POWERS of INTERVAL TRAINING

## for Health, Fat Loss and Performance

**Unless you've been living under a rock for the last few years, you're well aware that high-intensity interval training (HIIT) is a hot topic in fitness and sports training.**

In fact, the *American College of Sports Medicine* surveyed more than 3,800 fitness professionals to identify the top 20 fitness trends worldwide for 2014, and it was high-intensity interval training that took over the No. 1 spot.<sup>1</sup> Plus, HIIT also remained in the top three on the lists for 2015 and 2016.

Unlike most fitness trends that come and go, HIIT, which pairs performing high-intensity work (exercise) intervals with low-to-moderate intensity work (exercise) recovery phases, isn't going anywhere because it's based on a solid foundation of research demonstrating its powerful benefits. Put simply, according to current research, HIIT yields a broader range of health, performance and fat-loss benefits in less time with fewer sessions than the traditional approach of emphasizing continuous, steady-state, cardio exercise.<sup>2</sup>

### IMPROVED FAT BURNING AND METABOLISM

A 2008 study published in *Applied Physiology, Nutrition, and Metabolism* showed that high-intensity exercise sessions over six weeks (three times per week) increase whole-body and skeletal muscle capacities to oxidize fat (i.e., burn fat).<sup>3</sup>

Similarly, another 2007 study published in the *Journal of Applied Physiology* found that seven sessions of HIIT over only a two-week period of time induced marked increases in whole-body and skeletal muscle capacity for fatty acid oxidation during exercise.<sup>4</sup>

Additionally, steady-state cardio training has not been shown to create nearly the same excess post-exercise oxygen consumption EPOC (i.e., exercise after-burn) effect as high-

intensity exercise.<sup>5</sup> This is due to a simple reality of exercise: The higher the intensity, the greater the metabolic impact!

### INCREASED CARDIOVASCULAR FITNESS

Several research studies have demonstrated that cardiovascular adaptations that occur with HIIT are similar, and oftentimes superior, to those that occur with continuous endurance-based cardio training.<sup>6,7</sup>

For example, the same 2008 study mentioned above measured  $\text{VO}_2$  max responses among men and women who participated in an eight-week HIIT program and a continuous cardiovascular training program.  $\text{VO}_2$  max increases were higher in the HIIT program (15%) than they were in the continuous training program (9%).<sup>8</sup>

You may have heard the term  $\text{VO}_2$  max. In the book *Physiology of Sport and Exercise: 3rd Edition*,  $\text{VO}_2$  max is defined as "The highest rate of oxygen consumption attainable during maximal or exhaustive exercise."<sup>9</sup>

In other words, as exercise intensity increases, so does oxygen consumption. That said, a point is reached where exercise intensity can continue to increase without an associated rise in oxygen consumption. What we're really talking about here is aerobic versus anaerobic training, which are two terms that you must understand in order to appreciate the benefits and limitations of cardio training, which is aerobic, and of high-intensity interval training, which is anaerobic.

Put simply, aerobic (training) means "with oxygen," and anaerobic (training) means "without oxygen." And, as I just explained, the main thing that separates aerobic from anaerobic training is intensity.

To understand this in more practical terms, here's a simple, real-world example:

Let's say you and a friend are jogging together. While you are jogging you are carrying on a normal conversation. If you're able to speak in normal (full) sentences without any huffing and puffing between words, it means you're in an "aerobic state" (i.e., with oxygen). However, if you both decide to pick up the pace and speed up to a fast run or sprint, sure you'll still be able to talk to one another, but you'll be unable to get out full sentences without huffing and puffing, which means you're now in an "anaerobic state" (i.e., without oxygen). This is your aerobic ceiling or  $\text{VO}_2$  max.

The example I just gave you is called "The Talk Test." It's a very simple but legitimate method of telling whether you're in an aerobic or anaerobic state.

### BETTER PERFORMANCE!

Now that you understand that the major difference between anaerobic and aerobic training is intensity, it's obvious that high-intensity interval training is anaerobic training. That said, although you may be familiar with the phrase high-intensity interval training (HIIT), you may not be familiar with supramaximal interval training (SMIT), which many people are actually doing and calling HIIT.

To better understand how to use SMIT— and HIIT, for that matter— you must understand the differences between the two. HIIT involves interspersing high-intensity work (exercise) intervals performed at 100 percent of your  $\text{VO}_2$  max with either active-recovery (i.e., low-intensity) phases or passive-recovery phases (e.g., standing or sitting fairly still). SMIT, on the other hand, involves interspersing maximal-intensity (all-out) bursts of work (exercise) intervals performed at more than 100 percent of your  $\text{VO}_2$  max with passive-recovery phases.

Additionally, SMIT may be a more effective training method for active individuals at improving fitness and performance. A 2013 study published in

## HIIT YIELDS A BROAD RANGE OF HEALTH, PERFORMANCE AND FAT-LOSS BENEFITS IN LESS TIME WITH FEWER SESSIONS THAN DOES THE TRADITIONAL APPROACH OF EMPHASIZING CONTINUOUS, STEADY-STATE, CARDIO EXERCISE.

the *European Journal of Sport Science* looked at the endurance and sprint benefits of high-intensity (HIIT) and supramaximal interval training (SMIT). The researchers in this study found, "improvements in 3000m time trial performance were greater following SMIT than continuous running, and improvements in 40m sprint and Repeated Sprint Ability (RSA) performance were greater following SMIT than HIIT and continuous running."<sup>10</sup>

### USING SMIT AND HIIT SAFELY AND EFFECTIVELY: GENERAL GUIDELINES

As HIIT and SMIT have grown in popularity, there has been a decline in the popularity of the standard 30-minute bout of steady-state aerobic training (e.g., roadwork or exercise on a treadmill, elliptical trainer or bicycle). However, if you're just starting (or restarting) an exercise program, beginning with HIIT or SMIT may increase the chance for injury and muscle soreness. According to Len Kravitz, Ph.D. and Micah Zuhl, MS, in their highly science-based paper titled *HIIT Vs. Continuous Endurance Training: Battle Of The Aerobic Titans*, "Restarting any exercise program requires a careful progression of activity level. Beginning with HIIT may increase the chance for injury and muscle soreness. A better approach is to start with continuous, low-intensity aerobic exercise. A client who can run for 30 consecutive minutes at a moderate intensity can progress slowly into interval training."<sup>8</sup>

Therefore, it's probably a good idea to start with low-intensity aerobic exercise until you can run (or use the elliptical trainer or bike) for about 30 consecutive minutes at moderate intensity.

Once you've developed a training foundation, when using HIIT or SMIT, you must consider the work-to-rest time interval relationship (i.e., a ratio of exercise to recovery). For example, a 1:3 work-to-rest ratio could be 15 seconds of high or supramaximal intensity work followed by 45 seconds of rest. A 1:2 work to rest ratio could be a 30-second work interval followed by a one-minute rest. The work to rest ratio can vary based on one's fitness level, personal preferences, training goals or simply to add training variety and take on new fitness challenges.

Lastly, it's important to note that with both HIIT and SMIT, the more intense (or longer) the (work) interval, the longer the recovery period should be. That said, because SMIT involves supramaximal (all-out) intensity, the recovery period should involve full rest (no activity) between work intervals. On the other hand, when doing HIIT, "active rest" can be used by incorporating low-intensity exercise in the recovery phase.

### HIIT: Try Upright Bike or Airdyne Bike Intervals

Although the upright bike and Airdyne are low impact, high-intensity intervals performed on it create a very challenging conditioning workout.

**Action:** Pedal fast and hard at about 90 percent of your maximal ability for 15 to 30 seconds. Rest for 45 seconds to 90 seconds between intervals by pedaling slowly and lightly.

### SMIT

For an effective SMIT shuttle run workout, be sure to check out Cardio Burn in this issue. ■

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# GET SCULPTED LEGS WITH COMBINATION EXERCISES



In order to ensure your lower body resistance training workouts are truly comprehensive, you not only want to do lower body exercises that primarily involve movement at the hip joint (e.g., deadlifts), but you also want to include lower body exercises that emphasize movement at the knee joint (e.g., squats and lunges), otherwise known as leg-oriented exercises. The four lower body exercises provided in this article combine hip-oriented exercise and a leg-oriented exercise into one single, super effective combination exercise.

Let's face it— we are all busy these days. Even the most dedicated exerciser is concerned with maximizing their time in the gym. Combination exercises, like the four lower body combo moves provided in this article, are not only a great way to get more done in less time, but they are also a great way to boost the metabolic effect of your workouts, since the metabolic cost of a given exercise relates directly to the amount of muscle worked.<sup>1</sup>

In other words, as long as you bring the intensity by using challenging loads, these combination exercises require the exerciser to expend more energy because they require more muscles to work. Not to mention, these five combination exercises are a great way to spice up your workouts and give your muscles a new challenge that can spark new gains.

## DUMBBELL SQUAT + ROMANIAN DEADLIFT COMBO

**Set-up:** Stand tall with your feet hip-width apart, holding a pair of dumbbells by your sides.

**Action:** Perform the squat by bending at your knees and hips and lower your body toward the floor as low as you can possibly go. Once you've gone as deep as you can without losing the arch in your lower back, reverse the motion and stand up. Move the dumbbells in front of your thighs to perform the RDL, and while keeping your back straight, hinge at your hips and bend forward toward the floor, keeping your knees bent at a 15- to 20-degree angle. Once your torso is roughly parallel to the floor, drive your hips forward toward the dumbbells reversing the motion to stand tall again and complete one rep. Perform two to four sets of eight to 12 reps.



### Coaching Tips:

- As you hinge forward, drive your hips backward and do not allow your back to round out.
- Do not allow your knees to move inward toward the midline of your body. Keep your knees in line with your toes throughout.

## DUMBBELL BULGARIAN SPLIT SQUAT + SINGLE-LEG ROMANIAN DEADLIFT COMBO

### Set-up:

Stand tall holding dumbbells by your sides. Place your right foot on top of a bench or chair behind you in a split-squat stance.

### Action:

Perform the Bulgarian split squat portion by lowering your body toward the floor while keeping your back straight and your torso leaning forward at about a 45-degree angle. Reverse the motion by driving your heel into the ground to raise your body back up to the starting position. Then, perform the single-leg Romanian deadlift portion by keeping your back straight and hinging at your hips and lowering your torso forward toward the floor, keeping your front knee bent at roughly a 15- to 20-degree angle. Once your torso is roughly parallel to the floor, reverse the motion to stand tall again and complete the rep. Perform all repetitions on the same side before switching sides. Perform seven to 10 reps on each side.



### Coaching Tips:

- Keep your weight on your front foot throughout the exercise.
- Do not allow your back to round out at any point.

## DUMBBELL REVERSE LUNGE + ANTERIOR LUNGE COMBO

**Set-up:** Stand tall holding dumbbells by your sides with your feet hip-width apart.

**Action:** Perform the anterior lunge portion by stepping forward with one leg, keeping your front knee bent 15 to 20 degrees and your back knee straight or slightly bent. As your front foot hits the ground, lean forward by hinging at your hips and allowing your rear heel to come off the ground. Your torso should be no more than parallel to the floor and your back should be straight. Reverse the motion by stepping backward so your feet are together again and you return to an upright position. Then perform the same motion stepping forward with the other leg. Once you've performed one rep on each leg, perform the reverse lunge by stepping your leg backward, placing the balls of your foot on the floor while you simultaneously bend both your knees and lower your body down into a lunge. As your knees bend, hinge forward slightly at your hips, allowing your torso to lean slightly forward. Once your back knee lightly touches the floor, reverse the motion by stepping back up, bringing your feet back in parallel with one another. Perform the same motion by stepping back with your other leg. Once you've performed one rep on both legs, repeat the sequence, beginning with the anterior lunge. Alternate legs on each rep. Perform eight to 12 reps on each side.

**Coaching tips:**

- One rep = anterior lunge left, anterior lunge right, reverse lunge left, reverse lunge right.
- Do not let the dumbbells touch the floor at any point during this exercise.
- Do not allow your back to round out at the bottom of each lunge.



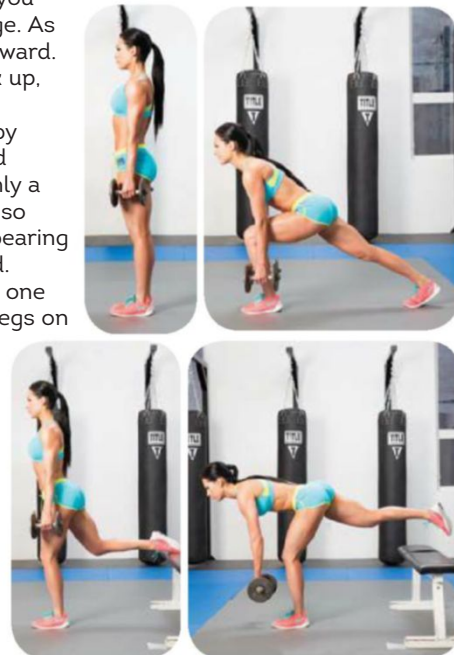
## DUMBBELL REVERSE LUNGE + SINGLE-LEG ROMANIAN DEADLIFT COMBO

**Set-up:** Stand with your feet hip-width apart while holding a dumbbell in each hand at your sides.

**Action:** Step your leg backward, placing the balls of your feet on the floor while you simultaneously bend both your knees and lower your body down into a reverse lunge. As your knees bend, hinge forward at your hips, allowing your torso to lean slightly forward. Once your back knee lightly touches the floor, reverse the motion by stepping back up, bringing your feet back in parallel with one another. Perform the same motion by stepping back with your other leg. Then, perform the single-leg Romanian deadlift by lifting one leg slightly off the ground and hinging at your hips while bending forward toward the floor, keeping your back straight and weight-bearing knee bent at roughly a 15- to 20-degree angle. As you hinge, allow your non-weight-bearing leg to elevate so that it remains in a straight line with your torso. Once your torso and non-weight-bearing leg are roughly parallel to the floor, reverse the motion by driving your hips forward. Perform the same motion while balancing on the other leg. Once you've performed one rep on both legs, repeat the sequence beginning with the reverse lunge. Alternate legs on each rep. Perform eight to 12 reps on each side.

**Coaching Tips:**

- One rep = reverse lunge left, reverse lunge right, single-leg Romanian deadlift left, single-leg Romanian deadlift right.
- Keep your back straight as you hinge at your hips and lean your torso forward to better recruit the glute musculature and make the exercise more knee friendly.
- At the bottom position of the single-leg RDL (when your torso is roughly parallel to the ground), keep your hips and shoulders flat and do not allow them to rotate.



## USING THESE EXERCISES

It's important to note that these exercise applications are not designed to replace proven knee or hip-oriented exercises such as barbell squats, barbell deadlifts, etc. Instead, they are intended to be a complement to these exercises. Therefore, it's recommend you sprinkle in one or two of these combination exercises, and use them along with conventional lower body strength training exercises. ■

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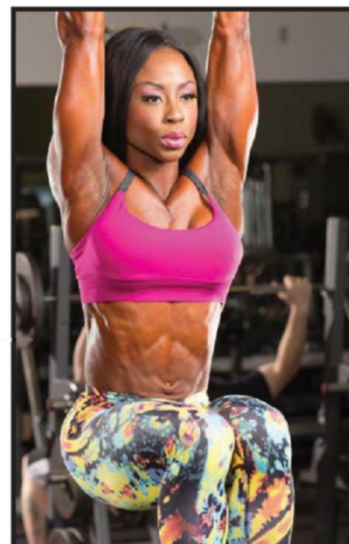


# 12 TIPS FOR FLAT ABS

WITH 2015 FIGURE OLYMPIA CHAMPION

**Latorya Watts**

*Latorya Watts, the 2015 Figure Olympia champion, knows exactly what it takes to achieve award-winning abs— so we asked her to share her top tips for flat abs and a favorite workout!*



**1. CLEAN UP THE DIET.** You cannot out train a bad diet, so understand the importance of proper nutrition.

**2. REDUCE BODY FAT.** We have to crank up the cardiovascular activity while making adjustments to the diet. Start adding high-intensity interval training to your routines. Short and sweet interval training can be fun yet challenging, but you'll get the results you want.

**3. THE ABDOMINAL MUSCLES** have to be developed with training before a cleaner diet and a lower body fat will reveal them. So fire up those abs now, ladies.

**4. FOCUS ON CONTRACTING ABS** at any and every chance you get. During full-body workouts such as squats, lunges, and/or deadlifts, contract those abs and keep the core tight. Also focus on this during cardio.

**5. DIRECTLY TRAIN ABS** at least three times a week. Three to four sets of 10 to 20 reps with minimal rest between sets. Don't be afraid to add resistance. This is how you develop thickness to those abdominals. So incorporate some weights, feel the burn and, again, focus on contracting. Really engage your mind-muscle connection.

**6. BREATHE!** Muscles need oxygen! Know how and when to inhale and exhale during ab training. I see a lot of people holding their breath, and that is a big no-no. So concentrate on your breath and focus on inhaling on the stretch and exhaling on the contraction. I feel that breathing correctly helps to open and close that rib cage, which helps with the "crunch."

**7. FORM.** This goes with any exercise. Having proper form eliminates injuries and keeps focus on the muscle being worked. When performing an ab exercise on the floor, be sure to keep chest open and chin up to the ceiling. This will keep strain off the neck.

**8. REST THOSE ABS.** Every muscle of your body needs

proper rest and recovery, which helps with muscle growth and development.

**9. STAY HYDRATED.**

Hydration will flush and rid your body of toxins that slow down how your body responds to diet and exercise. Plus, water is just good for you and gives your skin a beautiful glow as well as healthy hair and nails.

**10. ALWAYS WARM UP** before and stretch those abdominals after core training.

**11. TAKE UP YOGA.** Yoga helps you build core muscle strength and really engages your mind-muscle connection. You'll also increase your flexibility.

**12. BE PATIENT.** It takes time to build and reveal those sexy abs, ladies. The hard work and dedication will be worth it!

## LATORYA'S AB WORKOUT

5-minute warm up— now grab those mats and get moving!

**30- TO 60-SECOND PLANK HOLD:** 3 sets

**SIDE PLANK WITH ROTATION:** 3 sets x 10 reps (each side)

**HANGING KNEE/LEG RAISES:** 3 sets x 10 reps

**MEDICINE BALL V-UPS:** 3 sets x 10 reps

**REVERSE CRUNCHES:** 3 sets x 10 reps

**MEDICINE BALL MOUNTAIN CLIMBERS:** 3 sets x 20 reps

**RUSSIAN TWIST WITH MEDICINE BALL:** Set one, 20 reps; Set two, 30 reps; Set three, 40 to failure

**DON'T FORGET:** Hydrate and stretch!

*For more with Latorya, be sure to follow her on Facebook, as well as Twitter (@LatoryaWatts) and Instagram (@msOohlala). ■*





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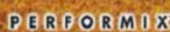
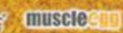
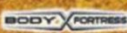
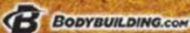
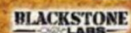
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Almost everyone knows that yoga has positive effects on physical and mental health. But research also shows that yoga may also be beneficial for your bones and osteoporosis.

For years, Dr. Loren Fishman, a physiatrist at Columbia University who specializes in rehabilitative medicine, has researched the links between yoga, bone health, scoliosis and more. He said that while it has been known for quite some time that weight-bearing activity has a positive influence on bone health, he had an idea that yoga could be beneficial for bones, and decided to do a pilot study in 2005.

For the study, Dr. Fishman had about 200 people come to his office every week and he would teach them the yoga. Bone density tests were done and compared to a control group that did not practice yoga. It was found that the yogis gained bone after two years. The people in the control group lost a little bit of bone that is typically expected over a two-year span, said Dr. Fishman.

Realizing that the yoga seemed to work very well in regard to bone loss, Dr. Fishman decided to invest some of his own money for a follow-up study and made a DVD with 12 yoga poses (English names: tree, triangle, warrior two, side angle, twisted triangle, locust, bridge, supine hand-to-foot one, supine hand-to-foot 2, straight-leg twist, bent-knee twist, corpse pose). Collaborating with a few others for the study, Dr. Fishman gave the DVD away to people who agreed to participate. It was a 10-year study involving 741 people.

"It turned out that they gained statistically significant bone," said Dr. Fishman. "I was frankly worried that I spent 10 years of my life doing something that didn't work. But it did work—it worked very well."

Each pose was held for 30 seconds on each side, so the daily regimen of 12 poses took about 12 minutes to complete. X-rays and bone density measurements were taken before and after the study.

It was found that among the 227 participants who were moderately or completely compliant with the yoga exercises, there was improved bone density in the spine, femur and hip

(these 227 participants had an average age of 68 and 83 percent of the participants had osteoporosis or the precursor, osteopenia). Dr. Fishman and his colleagues also wrote that there were no reported or X-ray detected fractures or serious injuries of any kind related to yoga in any of the 741 participants of the study.

In addition to increasing bone density, there are other benefits that make yoga a good practice for osteoporosis, said Dr. Fishman. "There's a whole group of doctors in Finland and also in Great Britain who feel that it's not osteoporosis that gives you the fractures— that what gives you the fractures is falling."

If that is the case, added Dr. Fishman, can yoga help prevent falling? "The answer is a resounding yes," he said. "Yoga improves your balance, it improves your range of motion, improves your strength, improves your hand-eye coordination, improves your posture— which is important for spinal fractures— and it lowers your anxiety. All of these are factors that are critical to falling. ... So yoga mitigates against what goes wrong with osteoporosis ... as well as makes your bones stronger."

There are millions of people who have osteoporosis, said Dr. Fishman, and there'll be more because the population is aging and growing. Many of them can't afford many of the medicines that are alleged to keep them from breaking a bone and they can't afford the care you get after breaking a bone— so yoga could be a solution.

Whether you look at bone mineral density, the tendency to fall, or bone quality, Dr. Fishman said, "yoga seems to be a safe and effective means of combating osteoporosis."

## THE BOTTOM LINE

Yoga can be a beneficial part of any workout routine— whether your goal is to increase flexibility, promote relaxation, reduce stress, prevent injuries, lower blood pressure and more. Plus, increasing research demonstrates that you can improve your bone health in the process. ■

# TOP 10 FITNESS TRENDS OF 2016

EVERY YEAR, THE AMERICAN ACADEMY OF SPORTS MEDICINE CONDUCTS ITS WORLDWIDE SURVEY OF FITNESS TRENDS, WHICH IS PUBLISHED IN ACSM's *HEALTH & FITNESS JOURNAL*. This year marks the 10<sup>th</sup> year for the survey, and for the most part the top 10 list includes most of the trends from last year's top 10 (except for wearable technology at number one), but they have all moved up

and down the list somewhat.

The survey was sent to thousands of health and fitness professionals worldwide to determine trends and fads in health and fitness for the coming year. For this survey, there were about 2,833 responses, which is an excellent return rate and very similar to return rates from prior years, according to the report.

In the survey, respondents were asked to make a distinction

between a "fad," which is only popular for a brief period, and a "trend," which indicates a real change or development in behavior. According to the report, Zumba, stability ball, indoor cycling and Pilates are examples of things that have yet to re-emerge as a trend, while wearable technology, new to the top 20, emerged as a developing trend and shot to the top spot this year.

## HERE ARE THE TOP 10 RESULTS FROM THE 2016 SURVEY:

**1. WEARABLE TECHNOLOGY.** Still pretty new to the fitness world, wearable technology includes smart watches, fitness trackers, heart rate monitors and GPS tracking devices (Misfit, Garmin, Jawbone, Fitbit and the Apple Watch are some examples). According to the report, some business analysts predict that the Apple Watch will sell more than 485 million devices by 2018.

**2. BODYWEIGHT TRAINING.** This first appeared in the trends survey at the number three spot in 2013, and was not an option before then because it's only become popular in the last few years, according to the report. Even though bodyweight training has been around for centuries, new packaging by commercial clubs has made it more popular in gyms.

**3. HIGH-INTENSITY INTERVAL TRAINING.** This year, HIIT falls from the top spot to the number three spot, after being at number two last year. Involving short bursts of activity and short periods of rest or recovery, HIIT routines are usually 30 minutes or less, but it's not uncommon for them to be longer, according to the report. In the survey, many commented that clients like this type of program for a short time and then wanted something else, while others warned that it is effective but were worried about the injury rate. Nevertheless, HIIT remains a popular form of training everywhere.

**4. STRENGTH TRAINING.** Remaining at the same spot it was last year, strength training is still popular with many different kinds of clients in all sectors of the health and fitness industry— including men and women, young and old, children and patients with a stable chronic disease, according to the report.

**5. EDUCATED, CERTIFIED AND EXPERIENCED FITNESS PROFESSIONALS.** This fell to number five after being number three on last year's list. It's a trend that continues now that there are accreditations offered by

national third-party accrediting organization for health and fitness and clinical exercise program professionals, according to the report.

**6. PERSONAL TRAINING.** Falling just one spot from last year's list, personal training remains a trend as more trainers become certified and educated, and as a result are more accessible in all sectors of the health and fitness industry, according to the report.

**7. FUNCTIONAL FITNESS.** Functional fitness, which is defined as using strength training to improve balance, coordination, power and endurance to enhance the ability to perform daily activities, moves up to the number seven spot from number nine last year. Special fitness programs for older adults are closely related to this trend, and it is also used in clinical programs to replicate activities done around the home, according to the survey.

**8. FITNESS PROGRAMS FOR OLDER ADULTS.** This remains at the same spot as last year, as fitness programs for older adults will remain a strong trend for 2016, according to the report. The baby boomer generation is aging into retirement, and older adults are more active than ever before. More retirement communities are offering health, fitness and wellness programs, and sports like golf, for instance.

**9. EXERCISE AND WEIGHT LOSS.** This trend involves weight-loss programs that emphasize calorie restriction and exercise, so it's no surprise that it remains in the top 10. According to the report, exercise and weight-loss programs have been a trend in the survey since it began 10 years ago.

**10. YOGA.** Yoga moves slightly down the list after being number seven on the 2015 survey. One reason that yoga remains in the top 10 is that with a variety of forms, instructional tapes, books and certifications, yoga seems to reinvent itself and refresh itself every year, according to the report. ■



# IS EXTREME EXERCISE BAD FOR YOUR HEART?

When it comes to exercise, we often encourage ourselves to push it to the limits in order to see the best results in the least amount of time. But is there such a thing as too much exercise, and could it actually be damaging to your heart?

## INCREASED CORONARY CALCIUM

A study conducted at the St. George's, University of London, presented at a meeting of the European Society of Cardiology, found that extreme exercise volume or intensity could be associated with increased levels of atherosclerosis in the coronary arteries. Dr. Sanjay Sharman, a British sports cardiologist who is the medical director for the London marathon, oversaw the study.

The study involved two groups— one group was made up of 169 competitive endurance athletes over the age of 40 and the other group involved 171 people (also over the age of 40) who were more sedentary but exercised up to 150 minutes per week, which is the amount of exercise per week currently recommended by a U.S. exercise guideline. The competitive endurance athletes were males and females who had been competing in endurance exercise for more than 10 years and ran more than 35 miles or cycled more than 150 kilometers per week, said Dr. Ahmed Merghani, a cardiologist who led the study. Both groups contained individuals who did not smoke, weren't diabetic and didn't have high cholesterol.

"What we found is that individuals and athletes who exercise at extreme levels ... do have a higher degree of coronary calcium or hardening of their arteries, which is something that's

often seen in coronary artery disease," said Dr. Merghani. And while certainly exercise is beneficial, it is possible to reach a certain point where you see diminishing returns, he added. "But I

less likely to cause a blockage in the arteries and result in a heart attack or stroke. On the other hand, soft calcium is more vulnerable and more likely to break off. But even so, plaque-free arteries are ideal, he added.

But what could be causing the more extreme exercisers to increase their coronary calcium levels? While no one really knows the answer to that, said Dr. Merghani, it could be due to rubbing friction on the artery wall, which over time could start to harden. Other factors could be underlying inflammation and/or unbalanced hormones.

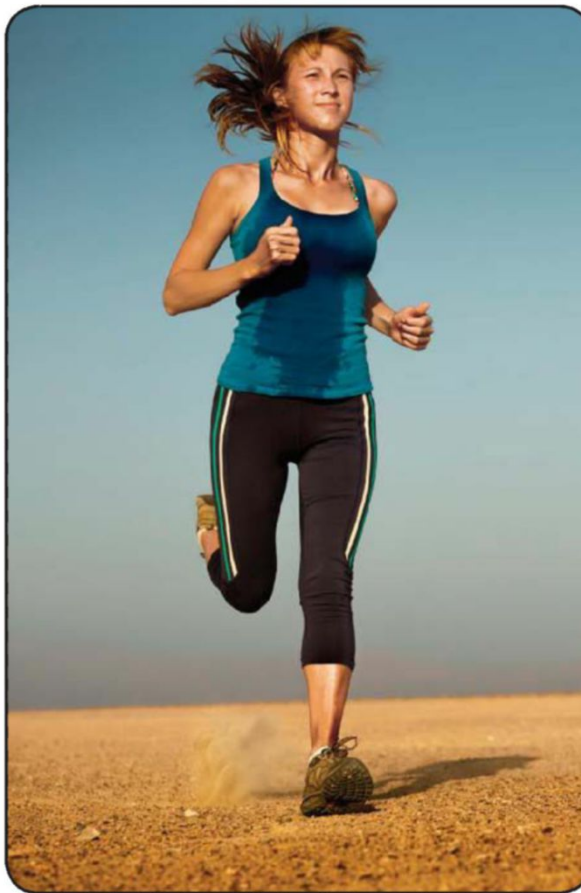
In fact, the fastest men in the study had higher levels of coronary calcium, and this may be due to hormones, said Dr. Merghani. Females are more protected because of estrogen, which protects the arteries.

## CAUSE FOR CONCERN?

So should extreme exercisers be concerned? Larger studies are required to determine that. "We know for a fact that people who do exercise live longer," said Dr. Merghani. "My feeling is that if you do that degree of exercise, and you're healthy, don't smoke, keep a good weight, have a good diet— I think you probably would have more benefits regardless of what your calcium shows."

However, if you do exercise to that extreme and have high blood pressure and smoke, among other risk factors, this would of course not be good for our health. "But I think the study as a whole probably does at least prove that exercise is not infinitely beneficial, and I think people think that the more you do, that the more benefits you get," he said.

Dr. Merghani hopes that the study will lead to more interest in this area of research. "We hope to collaborate with others and hope that the study will encourage others to produce larger studies." ■



have to point out that point is really quite high and it probably doesn't affect the majority of people who are recreational athletes."

## DENSE VERSUS SOFT PLAQUE

But there was also some good news that came out of the study, said Dr. Merghani. There are different types of plaque that can build up in the arteries— hard or soft calcium, or a mixture of both. The extreme exercisers in the study had more dense plaque, which is

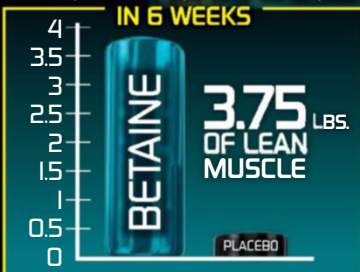


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# THERMOXYN™

BY iFORCE NUTRITION



If you want to lose weight and burn fat, you need to work hard and keep your diet in check, of course. But it can sometimes be difficult to find the energy to work out, and if you are trying to lose weight, you may be worried about losing muscle with increased cardio.

But the good news is that you don't have to choose between weight loss and lean muscle loss. **ThermoXyn™** from iForce Nutrition is an effective fat burner—but it's so much more than that. Its ingredients work to not only help you lose body fat, but also help with appetite control, increasing energy and mood, and sparing muscle. Let's take a look at how it works!

## ENERGY

Many products promise to provide energy for workouts, but this intense energy often comes with a crash afterward. This is not the case with **ThermoXyn™**. With **ThermoXyn™**, you get the best of both worlds—focused energy for workouts without the crash. **ThermoXyn™** contains caffeine, which has been shown to increase energy for workouts, as well as theacrine, a natural energy enhancer that is meant to keep the energy up when the caffeine wears off—meaning your energized state will last beyond the workout and help you get through your busy day.

## ELEVATED FAT BURN WITHOUT MUSCLE LOSS

**ThermoXyn™** contains compounds to increase thermogenesis, which is the production of heat in the body that burns calories. Ingredients include citrus aurantium, which contains synephrine and has been shown to target beta-3 adrenergic receptors that regulate thermogenesis and lipolysis, which is important for fat loss. **ThermoXyn™** also contains rauwolfia serpentina, which has been reported to burn excess calories as energy instead of storing them as fat. And yet another fat-burning ingredient of **ThermoXyn™** is raspberry ketones, which are meant to support an increased metabolism as well as the breakdown of stored fat through the release of fatty acids.

But **ThermoXyn™** really sets itself from other fat burners on the market because it works to preserve lean muscle while you are losing weight. **ThermoXyn™** contains lemon verbena (verbascoside), which is meant to attack and eliminate free radicals that are created when we burn fat cells, and also reportedly may protect and preserve lean muscle mass during exercise.

## INCREASED BASAL METABOLIC RATE

Basal metabolic rate (BMR) is the amount of calories our body burns every day to survive, such as the heart beating and the lungs breathing. Increased BMR helps to promote fat and weight loss. This is why **ThermoXyn™** contains ingredients that have been shown to be potent BMR enhancing ingredients for an increased metabolism. These ingredients include:

- Olea Europaea Leaf: meant to increase circulating levels of noradrenaline and adrenaline for greater metabolic burn throughout the day.
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# TOP 10 THERMOGENIC AND BROWN FAT ACTIVATORS

The nutritional supplement world has seen its fair share of “fat-burning” products claiming to be able to reduce body fat by simply increasing the rate at which fat is oxidized, or burned, within the body. While this approach to a leaner body seems pretty logical, it has one major drawback— as increasing the level of fatty acid oxidation simply results in the production of more of the energy-rich molecule ATP— which, at first glance, may not seem problematic. However, higher levels of ATP do not reduce body fat. In fact, what it will do is trigger homeostatic mechanisms within the body that will simply convert this ATP surplus back into body fat within a rather short period of time. So, the fundamental problem with merely converting body fat into ATP is that this process does not increase the amount of energy expenditure— which is the only valid way to reduce body fat.

Recent attempts to advance fat loss by explicitly boosting energy expenditure have included the use of several naturally occurring compounds that target brown adipose tissue, or brown fat. This type of fat, despite being fat itself, has the unique capacity to reduce the other type of fat, white adipose tissue, which is usually referred to as body fat. Brown fat minimizes body fat by activating a process known as thermogenesis that increases energy expenditure— which, once again, is essential to minimize body fat.

Brown fat is able to increase energy expenditure because it contains a different type of fat cell that uncouples fat burning with ATP production, converting the energy from fatty acid oxidation into heat instead. Most cells within the body can perform thermogenesis to varying degrees. However, brown fat performs thermogenesis most effectively— as each brown fat cell has more fat-incinerating mitochondria that possess a higher concentration of the UCP-1 protein that is directly responsible for the thermogenic function of uncoupling fat oxidation with ATP production. As a result, brown fat has a greater capacity than any other cell in the body to thermogenically burn more fat and uncouple this process to energy production, ultimately increasing energy expenditure and fat loss.

Thermogenesis in brown fat is typically triggered by exposure to cold temperatures, as thermogenically derived heat can be used to warm up the body. Cold temperatures stimulate the TRPV receptor within the brain, which triggers the sympathetic nervous system, resulting in the release of noradrenaline. The subsequent interaction between adrenaline and the beta-adrenergic receptors embedded within the cellular membranes of brown fat initiates uncoupled fatty acid oxidation or thermogenesis, generating heat. While prolonged exposure to cold temperatures for roughly two hours has been shown to effectively trigger brown fat activity and fat loss<sup>1</sup>, using this approach to lower body fat is rather impractical, based on the considerable amount of time necessary to trigger the fat-burning capacity of brown fat.

Many studies have shown that other members of the TRPV family are activated outside of the brain by various food-related compounds, instead of cold temperatures. Some of these compounds bind directly to TRPV receptors within the oral cavity, similarly activating the sympathetic nervous system and stimulating the thermogenic process within brown fat. Other compounds have

been identified that also induce brown fat thermogenesis, either by directly stimulating noradrenaline release or activating the adrenergic receptors within brown fat. Several other thermogenic compounds have been identified that more directly enhance the functional capacity of brown fat by increasing UCP-1 production within the cell, effectively improving the thermogenic process. Since all of these compounds remove the requirement for prolonged cold exposure, they represent a much more practical way to generate thermogenic-driven fat loss.

There are many different compounds that trigger thermogenesis, with some being much more effective than others. So, after countless hours of scouring through the science, we've compiled a list of the top 10 thermogenic supplements that potentially increase energy expenditure, giving an uncommon ability to burn fat and keep it off. Green tea extract containing concentrated catechins is not recommended in this review, because of possible liver toxicity!

## 1. CAFFEINE RAISES YOUR THERMOGENIC BUZZ

Caffeine is best known as the active ingredient in coffee that stimulates the central nervous system, impeding drowsiness and restoring alertness. Caffeine is also a potent thermogenic compound. In fact, a single dose of 100 milligrams of caffeine can increase thermogenically driven energy expenditure by approximately 100 calories per day<sup>2</sup>, demonstrating that regularly ingested doses of caffeine can have a significant influence on energy balance and fat loss.

## 2. P-SYNEPHRINE (FROM CITRUS AURANTIUM) SAFELY BOOSTS THERMOGENIC FAT LOSS

P-Synephrine is an alkaloid found in bitter orange and other citrus fruits including oranges and grapefruits<sup>3</sup>, and is widely used for weight management. Studies show that P-synephrine specifically binds to beta-3 adrenergic receptors found in brown fat.<sup>4</sup> This class of adrenergic receptor explicitly activates thermogenesis within brown fat. In line with this finding, P-synephrine has been shown to elicit a thermogenic effect by increasing resting metabolic rate in humans, with no adverse impact on heart rate or blood pressure, which typically occurs by activating the beta-1 and beta-2 adrenergic receptors.<sup>5</sup>

## 3. DOPAMINE ACTIVATORS: TYROSINE AND L-DOPA (FROM MUCUNA PRURIENS) DRIVE THERMOGENESIS

Consumption of the dopamine precursors tyrosine and L-Dopa increases dopamine production and function.<sup>6,7,8</sup> The neurotransmitter dopamine regulates neurons that initiate the thermogenic process. In fact, energy expenditure was shown to increase in subjects infused with dopamine in a dose-dependent manner, where greater levels of dopamine increased the amount of energy expenditure.<sup>9</sup> Consequently, the capability of tyrosine and L-Dopa to increase dopamine levels should produce a robust thermogenic effect, supporting considerable fat loss.

## 4. URSOLIC ACID INCREASES BAT LEVELS FOR ENHANCED THERMOGENESIS

## BROWN FAT HAS A GREATER CAPACITY THAN ANY OTHER CELL IN THE BODY TO THERMOGENICALLY BURN MORE FAT AND UNCOUPLE THIS PROCESS TO ENERGY PRODUCTION, ULTIMATELY INCREASING ENERGY EXPENDITURE AND FAT LOSS.

Another powerful approach that exploits the thermogenic potential of brown fat involves increasing the amount of brown fat in the body. A compound found in many fruits and herbs, known as ursolic acid, has recently been shown to increase brown fat levels.<sup>10</sup> Ursolic acid has also been shown to increase the expression of UCP-1, effectively increasing the thermogenic capacity of brown fat. This combined action gives ursolic acid the unique capacity to increase both the activity and quantity of brown fat, providing an extraordinary capacity to increase thermogenically driven energy expenditure and considerable fat loss.

### 5. BILE ACIDS ACTIVATE THERMOGENESIS BY STIMULATING THYROID HORMONE ACTIVITY

Bile acids typically emulsify fat for improved digestion. The use of bile acids as a supplement also provides resistance to diet-induced obesity by upregulating thyroid hormone function, which boosts thermogenesis in brown fat.<sup>11</sup> More precisely, bile acids have the capacity to bind to the TGR-5 receptor embedded in the cellular membrane of brown fat. The interaction between bile acids and the TGR-5 receptor escalates the expression of the enzyme deiodinase, which catalyzes the production of the active thyroid hormone triiodothyronine or T3. Greater T3 results in the stimulation of UCP-1 production, which enhances brown fat thermogenesis.

### 6, 7. KAEMPFEROL AND OLEUROPEIN – POLYPHENOLS THAT IMPROVE THYROID FUNCTION AND FAT BURNING

A wide variety of polyphenolic compounds also enhance thermogenic fat loss. One of the more potent being oleuropein, a polyphenolic found in extra-virgin olive oil, which can enhance noradrenaline secretion and increase UCP-1 in brown fat, triggering thermogenesis.<sup>12</sup> Another polyphenolic with remarkable thermogenic properties isolated from different sources such as tea, broccoli and grapefruit is the compound kaempferol. This compound uniquely activates the thermogenic process in muscle cells. All cells have the capacity to burn fat and expend energy via thermogenesis. Kaempferol also stimulates thyroid hormone production, which stimulates thermogenesis in brown fat<sup>13</sup>, giving kaempferol the unusual capability to activate thermogenesis in different cell types within the body, which most certainly contributes to its robust fat-scorching capacity.

### 8. SPICES: CAPSAICIN, PIPERINE, GINGER (GINGEROLS), CINNAMON (CINNAMALDEHYDE)

Capsaicin is the spice found in chili peppers that contributes to the hot and spicy flavor of the chili pepper. Capsaicin directly binds and activates the TRPV1 receptor within the oral cavity– which releases noradrenaline, boosting thermogenesis in brown fat. Several studies have shown that a single ingestion of capsaicin can activate brown fat thermogenesis<sup>14,15</sup>, while longer term ingestion of roughly six weeks increased thermogenesis in brown fat, resulting in reduced body fat.<sup>16</sup> Interestingly, this six-week study also showed thermogenic activity in brown fat contributed significantly to fat loss in individuals who had an extremely low amount of brown fat before the study began, which strongly suggests that long-term intake of

capsaicin can also increase the amount of brown fat in the body.

Three more spices– piperine, the spicy compound from black pepper; cinnamaldehyde, the pungent ingredient in cinnamon; and gingerol, the active constituent in ginger– also strongly induce thermogenic fat loss. Like capsaicin, piperine and gingerol activate the TRPV1 receptor while cinnamaldehyde activates the TRPA1 receptor, a member within the TRPV1 family of receptors. Activation of this family of receptors triggers thermogenic energy expenditure in a similar fashion to capsaicinoids<sup>17,18</sup>, which ultimately depletes body fat in a similarly powerful way. For best results, take quick-release supplements of capsaicin. Coated or delayed-release capsaicin may not be as effective because they bypass TRPV1 receptors in the stomach and upper gastrointestinal tract.

### 9. FORSKOLIN (FROM *COLEUS FORSKOHLII*)

Forskolin is a chemical produced by the Indian coleus plant that activates the enzyme adenyl cyclase within brown fat, resulting in greater cyclic AMP (cAMP) levels. Increased levels of cAMP in brown fat cells also occur when noradrenaline binds to the beta-adrenergic receptor, triggering thermogenesis. Therefore, the ability of forskolin to increase cAMP levels in brown fat also enhances thermogenesis. In fact, it has been reported that hamsters and rats given forskolin increased oxygen consumption and thermogenic activity of brown fat.<sup>19</sup> Furthermore, forskolin does not interact with beta-receptors in brown fat cells like noradrenaline does<sup>20</sup>, indicating that forskolin could have an additive impact on thermogenesis when taken with other thermogenic compounds that directly trigger noradrenaline release and beta-adrenergic production of cAMP– producing superior levels of thermogenic fat loss.

### 10. MELATONIN

Melatonin is a hormone secreted by the pineal gland in the brain that regulates the sleep/wake cycle, helping you fall asleep. Melatonin is also involved in energy metabolism and bodyweight control. Many studies show that melatonin reduces bodyweight and abdominal fat<sup>21</sup> without eating less or increasing physical activity. Conceivably, melatonin reduces fat without decreasing food consumption or physical activity by activating thermogenesis in brown fat<sup>22</sup>, which increases energy expenditure and thus fat loss. ■

For most of Michael Rudolph's career he has been engrossed in the exercise world as either an athlete (he played college football at Hofstra University), personal trainer or as a research scientist (he earned a B.Sc. in Exercise Science at Hofstra University and a Ph.D. in Biochemistry and Molecular Biology from Stony Brook University). After earning his Ph.D., Michael investigated the molecular biology of exercise as a fellow at Harvard Medical School and Columbia University for over eight years. That research contributed seminally to understanding the function of the incredibly important cellular energy sensor AMPK– leading to numerous publications in peer-reviewed journals including the journal *Nature*. Michael is currently a scientist working at the New York Structural Biology Center doing contract work for the Department of Defense on a project involving national security.

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# 12 SUPERFOODS for a SUPER YOU



If you're looking for the secret to a long, healthy life, lean body, energy levels, laser-focused concentration and mental processing— then take a trip to your local grocery store. The 12 superfoods covered here will take your health and athletic performance to the next level!

## Salmon

Salmon is rich in the omega-3 fatty acids EPA and DHA, which are primarily known for their role in heart health, yet are also important for your brain and eyes. EPA and DHA decrease triglycerides (fat in the blood) and blood pressure. This relationship between fatty fish, like salmon, and triglycerides is dose-dependent— the more salmon you eat, the more your triglycerides will drop. People who eat a diet loaded with fatty fish have lower rates of death from cardiovascular disease (diseases of the heart and blood vessels). Just one to two servings of fatty fish each week could reduce your risk of death from heart disease by an astounding 36 percent and death from all causes by 17 percent. For women who are pregnant or breastfeeding, there's an added benefit: eating at least 8 ounces of DHA-rich fish each week means you'll have a healthier baby.

Other options: If you aren't in love with salmon, try mackerel, herring, halibut, lake trout, sardines or anchovies. Not into fish? Pick up a fish oil supplement.

## Blueberries

Blueberries are an excellent source of vitamin C and are good for healthy skin, bones and immune function, and are a good source of fiber, which will help prevent constipation while also helping lower your risk of heart disease and type 2 diabetes. The Dietary Guidelines for Americans consider vitamin C a "nutrient of concern"— one that Americans aren't getting enough of through diet. Emerging research also suggests blueberries help protect the heart from some of the damage experienced during a heart attack while also helping repair the damage. Blueberries are also good for your brain. Over a decade of animal research shows blueberries improve memory while a small study in older adults found those given blueberry juice scored higher on a memory test compared to adults given a placebo.

Other options: Aside from blueberries, pick up other blue, as well as dark purple, fruits and vegetables. Regularly eating (or drinking) foods with blue and purple antioxidants helps improve artery health, leading to greater blood flow throughout your body.



## Olive Oil

Olive oil is a staple in Italy and Spain where the Mediterranean diet, one that relies on olive oil for cooking, is associated with reduced risk of cardiovascular disease, cancer and improved brain health. Replacing dietary saturated fats, such as butter or shortening, with olive oil may help reduce risk of coronary heart disease. Replacing other cooking oils with olive oil may help lower blood pressure and improve blood cholesterol. Use olive oil in moderation, because it is high in calories. There are some sketchy companies out there that mix cheaper quality oils with olive oil to lower their costs. Make sure you're getting

good quality olive oil by looking for a seal of approval from the USDA Quality Monitoring Program or the North American Olive Oil Association (NOOA).

Other options: For baking, cooking, stir-frying and other high heat cooking, consider almond, hazelnut, peanut or pecan oil.

## Dark Chocolate

Wouldn't it be great if you could bite into a rich, smooth, dark piece of chocolate with complete confidence that you were doing something good for your body? Dark chocolate is made from cocoa powder— the defatted powder from cacao beans. Cocoa powder contains flavanols, a group of antioxidants responsible for the association between dark chocolate consumption and improvements in blood pressure. Unfortunately, you can't rely on the percentage of cocoa or cacao in a bar as an indicator of total flavanol content.

Other options: Flavanol-rich cocoa powder (CocoaVia) supports cardiovascular health and also improves blood flow in the brain as well as some aspects of brain functioning. Cocoa powder that is Dutched (processed with alkali or sodium bicarbonate— it should say this on the label) has a lower flavanol content. Also consider ReserVage™ CocoaWell® True Energy (more flavanols than CocoaVia; product contains caffeine) and Baker's unsweetened baked chocolate bar. ConsumerLab.com found both are high in flavanols and low in cadmium (a metal that is harmful for the body).



## Beets

Beets come in brilliant shades of dark red, yellow and orange and have a nice sweet, earthy flavor. They are a good source of potassium for nerve and muscle functioning as well as healthy blood pressure, vitamin C and fiber. Beets are also among the highest dietary sources of nitrates. Nitrates are compounds that increase the body's production of nitric oxide, a gas that expands blood vessels to accommodate greater blood flow. Regular intake of high-nitrate foods can help lower blood pressure and improve blood vessel functioning. If you drink 16 ounces of beetroot juice (containing 300 to 500 mg of nitrates) two-and-a-half to three hours before you hit the gym, you may notice a bump in energy thanks to greater blood flow to working muscles. There's one caveat: antibacterial mouthwash will kill the bacteria in your mouth that are necessary for the first step in nitric oxide production.

Other options: Celery, arugula and spinach are good sources of nitrates.



## Ginger

Ginger soothes an upset stomach and helps ease symptoms of motion sickness. Make ginger a regular part of your culinary creations and you'll also benefit from its ability to decrease muscle soreness after tough bouts of exercise.

Other options: Combat excess muscle soreness with tart cherry juice.

**Just one to two servings of fatty fish each week could reduce your risk of death from heart disease by an astounding 36 percent and death from all causes by 17 percent.**

# ULTIMATE IN NUTRITION

## Sunflower Seeds

One serving of sunflower seeds will help you meet one-half of your daily vitamin E needs— a nutrient that most Americans aren't consuming in recommended amounts (a "nutrient of concern" according to the 2015 Dietary Guidelines for Americans). Vitamin E protects your cell membranes (including muscle cells) from damage, supports immune functioning and helps expand blood vessels to accommodate greater blood flow. Vitamin E deprived muscle cell membranes do not heal properly, yet a healthy balance is important. Get enough but not too much of this vitamin, as both deficiency and excess may impair your training gains. Plus, more than recommended amounts will not improve athletic performance.

Other options: Snack on almonds, pine nuts and peanuts to help you meet your vitamin E needs.



## Kefir

Kefir is a tangy cultured milk product made by fermenting milk with several bacteria and yeasts, making it rich in beneficial bacteria called probiotics. There are many types of probiotics and each one may have specific benefits such as supporting digestive, vaginal or immune health. Kefir is an excellence source of calcium and vitamin D (a "nutrient of concern") for bone health as well as several B vitamins (your energy vitamins). Calcium is another "nutrient of concern"— one many Americans aren't getting enough of through their diet. Opt for plain kefir or mix a little flavored kefir (generally high in added sugars) with plain kefir for taste but less sugar. If you are lactose intolerant, you may find that kefir is easier on your stomach than milk because enzymes in the bacteria help break down lactose.

Other options: Though most yogurts don't contain the wide array and number of probiotics as kefir, they are a great option as well. Other probiotic-rich foods include unpasteurized sauerkraut, miso soup, naturally fermented pickles and sourdough bread.



## Pumpkin Seeds

Pumpkin seeds are one of the best sources of magnesium, a mineral that is so widely under-consumed the 2015 Dietary Guidelines for Americans labeled it a "nutrient of concern." Magnesium keeps muscles and nerves functioning properly and is also necessary for energy production. Pumpkin seeds are also an excellent source of zinc, a mineral important for immune health and wound healing.



Other options: Sesame seeds and Brazil nuts are also excellent sources of magnesium. For a magnesium-packed meal, brush firm tofu (also a source of magnesium) with sesame oil and coat with sesame seeds before stir-frying.

## Garlic

Garlic adds flavor without calories to a wide variety of dishes. When used in a marinade or incorporated into beef, fish, chicken or turkey patties, garlic helps limit the formation of nasty compounds that cause cancer in animals, heterocyclic amines (HCAs). HCAs are formed when your protein-rich food is cooked. High dry heat leads to more HCAs formed, so make sure you add garlic to any meat, poultry or fish you throw on the grill or in the smoker.

Other options: Rosemary and Caribbean spices also decrease HCA formation.



## Tempeh

In your local grocery store, tucked in a remote refrigerator between tofu and non-dairy "cheese," you'll find long, thin light brown colored sheets of tempeh. Though it isn't always easy to find, the search is time well spent. Tempeh is fermented soybeans. Unlike tofu, tempeh includes the whole soybean, so it is higher in protein, fiber and vitamins. Tempeh is also an excellent source of iron (for oxygen delivery throughout your body), magnesium and vitamin B6 (an energy vitamin) and good source of calcium.

Tempeh has a firm, chewy texture and slightly earthy, bean-like taste. Replace deli meat with tempeh, try it sautéed in sesame oil and garlic, grilled or served on top of salad.

Other options: Pick up plain or flavored tofu.



## Green Peas

Consider adding green peas to your rice pilaf, pasta dish, casserole or stew. Green peas are an excellent source of fiber and vitamin C, good source of vitamin A (important for your eyes and a "nutrient of concern") and also contain decent amount of magnesium, vitamin B6, folate (a "nutrient of concern," folate helps build healthy new cells and prevents some birth defects) and iron. Look for pea protein in bars and protein powders. It boosts a leucine (the key amino acid that turns on muscle building and repair) content equivalent to whey protein and will give you the same muscle-building results as whey protein.

Try peas in multiple forms, including pea protein powder, split pea soup and peas mixed into burritos, wraps and other dishes.

Other options: Consider yellow whole or split peas. They have a similar nutrition profile to green peas. ■



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# GET ON BOARD WITH THE *THE LYNX* *BOARD*

We are always on the lookout for new and innovative training methods and products that deliver results and are easy to use. When we heard about the Lynx Board from Lynx Fitness, and its unique friction training, this caught our eye and our team had to give it a “test drive.” We found the Lynx Board appealing for a number of reasons.

## ‘AN AWESOME WORKOUT!’

- The Lynx Board allowed us to get an effective, full-body workout whenever we want, wherever we want. That’s because the Lynx Board is totally portable and storage is easy, so we were able to set it up in minutes, at home. No more rushing to the gym first thing in the morning or trying to juggle 10 different projects at once, with fitness (hopefully) being one of them.

- The Lynx Board delivered a virtually no-impact workout, which was a welcome relief compared to the pounding our bodies can take after being on some cardio machines at the gym.

- Friction technology allowed us to control the intensity of our workout, depending on how much pressure we applied. With the Lynx Board, we really felt like we were in the driver’s seat, training at a pace that was comfortable for us.

“What an awesome workout!” is how one of our staffers put it after trying out the Lynx Board. “All of my muscles were sore, and I could feel my core being worked– and the Lynx Board did wonders for my posture and balance. Not a very long workout, but still a great workout.”

Our results with the Lynx Board prove that it’s not the quantity of time you train that really matters, but rather the quality of your workout.

## THE CHOICE IS YOURS

There are two product lines, one recommended for private use and travel (the Lynx Travel Board) and one recommended for home/studio/gym use (the Lynx Home/ Gym Board).

Whether you are the dedicated fitness enthusiast, one who exercises part time or the weekend warrior, friction training with the Lynx Board is the ideal, time-efficient and effective method to reach your goal– whether it is to build muscle, burn fat, lose weight, improve core fitness or improve performance.

For more information, visit [lynxfitness.com](http://lynxfitness.com).



## ABOUT THE LYNX BOARD

The Lynx Board is a simple yet effective fitness tool that unlocks the power of friction training, a multifunctional and easy method that uses your bodyweight. The Lynx Board consists of a rectangular plate measuring 55" by 40" (140 cm x 100 cm) with pads. With the Lynx Board, you are training with a carefully tested friction between a plate and a set of pads.

The Lynx Board’s friction training is similar to the sensation that a skater feels as he or she streaks across a frozen pond. The patented Lynx Board surface responds to your bodyweight by increasing the intensity of the workout proportionately to the pressure you exert.

In one single exercise, you are activating several muscle groups along horizontal, vertical, rotational and diagonal vectors without the use of weights. The Lynx Board is a great tool for functional strength training, and it’s also a great dynamic stretching tool, allowing flexibility training during strength exercises.

## VIRTUALLY NO IMPACT

As a result of the Lynx Board’s resistance-controlled friction, there is virtually no impact, which makes the training advantageous for people recovering from injury or who have chronic joint problems such as osteoarthritis. Friction makes the precise control of movement easy to maintain, and range of motion cannot exceed the user’s level of muscular performance. You control your training and the outcome of it by using a combination of load and movement.

## IMPROVE CORE STABILITY AND PERFORMANCE

The Lynx Board’s patented friction surface and training method provides better improvement in your core stability, mobility, balance, control and coordination. It also offers increased performance, improves posture and greatly reduces the chance of injury. Friction training with the Lynx Board utilizes free motion, full-body movements that can help anyone of almost any age develop core strength and become faster, stronger, more agile and more explosive. ■



## Introducing the Lynx Board

Perfect for the home, gym or travel, the Lynx Board marks the latest advance in fitness with our patented high-friction workout. This high energy, low-impact device targets your all-important core, burning more calories than many fitness machines, like stairclimbers and treadmills. It is low impact, easy to use and highly effective. Get On Board at [Lynxfitness.com](http://Lynxfitness.com)

**Lynxfitness.com** | **GET ON BOARD™**

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